

CALIFORNIA AND WESTERN MEDICINE

OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION

VOL. 47

JULY, 1937

NO. I

California and Western Medicine

Owned and Published by the
CALIFORNIA MEDICAL ASSOCIATION
Four Fifty Sutter, Room 2004, San Francisco, Phone DOuglas 0062

Address editorial communications to Dr. George H. Kress as per address above; advertising and business communications to Secretary-Treasurer, Dr. Frederick C. Warnshuis, also at above address.

EDITOR GEORGE H. KRESS

Advertisements.—The Journal is published on the seventh of the month. Advertising copy must be received not later than the fifteenth of the month preceding issue. Advertising rates will be sent on request.

BUSINESS MANAGER . FREDERICK C. WARNSHUIS
Advertising Representative for Northern California
L. J. FLYNN, 544 Market Street, San Francisco (DOuglas 0577)

Copyright, 1937, by the California Medical Association.

Subscription prices, \$5 (\$6 for foreign countries); single copies, 50 cents.

Volumes begin with the first of January and the first of July. Subscriptions may commence at any time.

Change of Address.—Request for change of address should give both the old and the new address. No change in any address on the mailing list will be made until such change is requested by county secretaries or by the member concerned.

Responsibility for Statements and Conclusions in Original Articles.—Authors are responsible for all statements, conclusions and methods of presenting their subjects. These may or may not be in harmony with the views of the editorial staff. It is aimed to permit authors to have as wide latitude as the general policy of the Journal and the demands on its space may permit. The right to reduce or reject any article is always reserved.

Contributions—Exclusive Publication.—Articles are accepted for publication on condition that they are contributed solely to this Journal. New copy must be sent to the editorial office not later than the fifteenth day of the month preceding the date of publication.

Contributions—Length of Articles: Extra Costs.—Original articles should not exceed three and one-half pages in length. Authors who wish articles of greater length printed must pay extra costs involved. Illustrations in excess of amount allowed by the Council are also extra.

Leaflet Regarding Rules of Publication.—CALIFORNIA AND WESTERN MEDICINE has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this Journal write to its office requesting a copy of this leaflet.

DEPARTMENT INDEX

(Itemized Index of Articles is printed on Front Cover)

	PAGE
Editorials	1
Editorial Comment	4
Original Articles	7
Lure of Medical History	37
Clinical Notes and Case Reports	41
Bedside Medicine	43
California Medical Association	50
C. M. A. Department of Public Relations	52
Woman's Auxiliary to C. M. A.	54
News	57
Medical Jurisprudence	59
Special Articles	60
Twenty-Five Years Ago; State Examining Board	72
Index to Advertisements	Adv. p. 8

EDITORIALS†

END-RESULTS OF THE 1937 LEGISLATIVE SESSION: ON PUBLIC HEALTH AND MEDICAL PRACTICE

July 2 Will Decide the Fate of All Proposed Laws.—On page 364 of the June issue of CALIFORNIA AND WESTERN MEDICINE, comment will be found concerning the more important among the 250 bills having relation to public health and medical practice matters which were submitted during the recent legislative session. Yet the complete story will not be told until July 2, for Governor Frank F. Merriam has the right, until that date, to decide whether he will approve, veto, or pocket-veto (that is, not sign for yes or for no) the nine hundred measures still on his desk when the Legislature adjourned on May 28.

* * *

Possible Gubernatorial Action.—It is not possible for us to know, of course, what decision His Excellency will come to in regard to certain of the bills; but since this issue of the OFFICIAL JOURNAL will not run from the press until the Governor's decisions have been made, it may be permissible to hazard a guess or two.

Medical Practice Act and State Board of Health Codes. The revised codes for the State Board of Medical Examiners and the State Board of Health will probably receive approval. The Code Commission's rearrangement of the text of the laws coming under the jurisdiction of those boards is needed and, if enacted into law, should be of real service.

Nonprofit Hospitalization. The nonprofit hospitalization measure (Assembly Bill 1132) has received the approval of the Attorney-General and the Insurance Commissioner, and hopes are held by the Hospitalization Committee of the Los Angeles County Medical Association that the proposed law will receive gubernatorial sanction.

Veneral Diseases. The venereal disease bill, which went on to passage as Assembly Bill 2790, carries an appropriation that will make possible the institution of a real campaign to combat the incidence of syphilis and gonorrhea. It is thought that Governor Merriam is in sympathy with the purposes of the bill, and that he will give it his

† Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Editorial Comment column which follows.

approval, although later press dispatches indicated that there might be some change in the amount of funds allocated for the work.

Clinical Laboratories. The Clinical Laboratory, or Senate Bill 118, received a favorable vote in both Senate and Assembly. The State Board of Health, designated as the licensure body, did not approve the measure. It is one of those unfortunate measures which makes it mandatory upon a constituted state agency—in this instance the State Board of Health—to issue licenses, without giving any real disciplinary authority to the Board. If a laboratory, for example, is turning out work that, in the opinion of the State Board of Health, is not up to standard, all the Board can do in the premises is to “recommend” to the director of such a laboratory that certain changes be made! It obligates the Board to give blanket licenses to certain laboratories that have been in existence a certain number of years, and also to “technologists” and “technicians” who have been doing work for a specified time.

Expert Medical Testimony. The Expert Medical Testimony Bill (Senate Bill 446) is before the Governor for consideration, and, if approved, will mark a real step forward in this important field.

Other Measures. The above are the more important measures on which, at the time of this writing, action is still pending. The “open county hospitals” bills went down to early defeat, but will probably be revived two years hence.

The health insurance measures (Senate Bill 605 and companion, Assembly Bill 1491) did not secure legislative sanction and, therefore, lie over again for battle presumably when the Legislature of 1939 convenes.

STANDING COMMITTEES OF THE ASSOCIATION: MEMORANDUM: LETTERS ON THEIR WORK

Rosters of Officers and Committeemen Are Listed in Each Issue of the Official Journal.—On advertising page 2 of each issue of CALIFORNIA AND WESTERN MEDICINE appears a roster of the Association's officers and standing committees. The attention of members of the fifteen important committee groups there listed is called to the resolution, printed on page 417 of the June issue, which, as adopted by the House of Delegates at Del Monte, provides for a mid-annual session meeting of committeemen, to be held this year at Fresno, on Saturday, October 30.

* * *

Committeemen Should Learn Opinions of Fellow Members Through Correspondence.

Members of each standing committee should acquaint themselves with the purport of the above resolution, and should anticipate its purpose by early conference, through correspondence, with one another, and exchange written memoranda on the work their respective committee is supposed to cover. New members of standing committees will find the function of each committee outlined in the Association by-laws, a copy of which may be had by request to the central office of the Association.

The chairman of each standing committee has a special obligation in this, and may well take the lead in writing such a memorandum-letter through which opinions may be exchanged, and the basis so prepared for the report which each committee will be called upon to give at the October meeting, at which officers of the Association and county society secretaries will also be present.

JOSEPH POMEROY WIDNEY: FOUNDER OF THE LOS ANGELES COUNTY MEDICAL ASSOCIATION

Los Angeles County Medical Association Is Fortunate.—The Los Angeles County Medical Association, with its 2,255 members,* is perhaps unique because, 'way out on the Pacific Coast, in the southwestern corner of the United States, it shows to organized medicine not only one of the largest component county units of any of the constituent state associations of the American Medical Association, with a headquarters home and a library that are of increasing joy to members and others who visit and use them, but also through the fact that he who was the motivating spirit when the Association was formed, more than fifty years ago—Dr. Joseph Pomeroy Widney, now in his ninety-seventh year!—is still among those present, and at this ripe age continues to display to colleagues, of all ages, an example of work and service that is little less than an inspiration.

* * *

A Life Notable for Its Record of Service.

The notable medical, educational, and civic career of Founder Widney was outlined in CALIFORNIA AND WESTERN MEDICINE in its issues for April and May, 1936 (pp. 292 and 396); and in last month's number, on page 398, was printed his message to fellow members, given seventy-one years after he received his medical degree, when the handsome bronze bust sculptured by another member of the Los Angeles County Medical Association, Dr. Emil Seletz, was unveiled with notable ceremonies. As a member of the Class of 1866 of Toland Medical College, which in time became the School of Medicine of the University of California, Doctor Widney has had the distinction of being the oldest living graduate of that institution.

Attention is now called to the article because a perusal of Doctor Widney's philosophy of service, and his outlook on the evolution of medical practice, as portrayed by him in brief remarks to his colleagues (as he leaned upon the staff which his blindness compels him to carry), cannot do other than make one marvel at such a rounded-out life of service.

For all of us, a fervent wish should be that, with equal humility, we may carry on our work with the same earnestness and devotion as Doctor Widney so successfully has done, and is still doing in his ninety-seventh year. To him, then, our continued good wishes!

*The Los Angeles County Medical Association also carries on its rolls: 22 military members; 36 members on leave of absence; and 91 honorary (retired) members.

QUALIFYING CERTIFICATE (BASIC SCIENCE) INITIATIVE

Naturopaths Seek a Separate Board.—During the recent legislative session a cultist group, the Naturopaths, through Assembly Bill 1472, sought legal recognition from the State of California, and the establishment of a separate licensing healing art board. This year their effort failed; but if past experience counts for aught, this new group of cultist practitioners, as witness the osteopathic and chiropractic acts which exist in California, may hope to be more successful at some future time in their endeavors to secure legal recognition and sanction.

* * *

Contributions of Scientific Medicine to Health and Life Conservation.—Of course, it seems strange that, in a day and generation during which the efficient contributions for the conservation of human health and life, as rendered in the last one hundred years by scientific medicine, have been so great, it should not be self-evident to laymen everywhere that the protection of the health and lives of citizens must be intimately associated with the type and standard of professional education and training which the State demands of those to whom it gives licenses, authorizing them to go before the public as healing art practitioners.

* * *

Smoke Screens in Legislative Chambers.—Unfortunately, it is not a difficult task to create, in the atmosphere of legislative chambers, a smoke screen thrown down through unwarranted statements as to the proposed scope to which a cultist group seeking recognition states it will confine itself; or, through misleading arguments on the efficacy of various modes of treatment, when, as a matter of fact, the fundamental issue that should be considered is the maintenance of that adequate training which makes for keener recognition and diagnosis: the treatment then, in most cases, becoming greatly simplified.

* * *

Initial Recognition Always Followed by Additional Demands.—Once a cultist group secures its first recognition, it is generally the experience that its disciples never rest until the scope of work to which they aspire is legally extended to include as much as possible of what is known as physician and surgeon healing art practice. Witness in this connection, in the last Legislature, the hard battle put forth by the osteopathic group to bring about the school health-certificate enactment by the recent California Legislature, through Assembly Bills 684 and 1880. In one of the committee hearings, at which Doctor Harris of Sacramento was present, the catalogs of osteopathic schools were actually produced as proof (as if such printed matter ever could be proof!) that the courses of training for osteopathic students, as indicated by the amount of the printed hours in the catalog, were more extensive than in the same subjects given in the medical schools of the State University, Stanford, the University of

Southern California, or the College of Medical Evangelists!

Consider, again, the efforts of the naturopathic group on behalf of Assembly Bill 742, through which its disciples hoped to secure a separate licensing board. No naturopathic school can point to faithful recognition of standards of preliminary education and professional training, such as are meticulously maintained by the four nonsectarian medical schools of California (University of California, Stanford University, University of Southern California and the College of Medical Evangelists). It would be, then, a patent injustice to permit any group thus to lower the standards of healing art licensure and practice.

* * *

Qualifying Certificate (Basic Science) Law the Answer to Multiple Healing Art Boards Problem.—Mention is made of this recent attempt by the naturopathic group to secure legal recognition through legislative enactment in order again to draw attention to the value of a Qualifying Certificate (Basic Science) law. In California, such a measure, if it is to apply to the three healing art boards already in existence (medicine, osteopathy and chiropractic, and any others which may come into being later) must be a law, not passed by the Legislature, but by initiative vote of the citizens of California. The next state election will be held in the fall of 1938, and initiative measures which would appear on the ballots may need to be circulated in the spring of that year. The expense of securing the 186,000 valid signatures of voters with precinct allocations is not inconsiderable. The cost of such an effort should be contrasted, however, with the indirect cost running through the years that would be levied against nonsectarian practitioners if several thousand additional cultist practitioners were suddenly thrown into healing art practice in California. Something like that happened not so long ago. Shall it be permitted to occur again? It is generally agreed that, as judged by the efficiency of basic science laws in other commonwealths, a qualifying certificate law is the best solution of the problem of multiple healing art licensure boards, and, therefore, a subject well worthy of continued study. At the October meeting of officers, standing committees and county society secretaries, members in attendance must be prepared to express their views on what course should be followed by the California Medical Association Council, to which body, by act of the House of Delegates at Del Monte, responsibility for action has been given.

* * *

Some Newspaper Excerpts of Interest.—After the above comments were sent to the printer, reports of the proceedings of the state convention of one of the groups referred to appeared in the newspapers under date of July 24. They are of interest as showing the trends of thought and proposed action; and for the information of readers of CALIFORNIA AND WESTERN MEDICINE, are given space on page 60 of this issue.

**CONGRATULATIONS TO DR. JUNIUS B.
HARRIS OF SACRAMENTO, AND TO
SAN FRANCISCO**

The House of Delegates of the American Medical Association, at its eighty-eighth annual session, held at Atlantic City, June 7-11, was called upon to act on several problems of great importance. The session was notable not only because of the actions taken concerning the care of the indigent sick and the relation of governmental agencies thereto, and in regard to birth control clinics and other matters of scientific and public health and welfare importance, but also because of the large attendance, some 9,764 members of the Association having registered.

Of special interest to Californians was the election of Dr. Junius B. Harris of Sacramento as vice-president of the American Medical Association. Members of the California Medical Association, who are familiar with the generous contributions which Doctor Harris for many years has made to scientific and organized medicine, are appreciative of the honor which has come to their beloved colleague, and join in congratulations.

Equally pleasing was the selection of San Francisco as the place of meeting for the 1938 annual meeting of the American Medical Association, to be held during the week beginning June 13. The California Medical Association and the San Francisco County Medical Society may be counted on to give fullest cooperation in all efforts that will make next year's San Francisco gathering a most successful session of the American Medical Association.

At its September meeting, the Council of the California Medical Association will designate the date of its own 1938 session, to be held at the Hotel Huntington in Pasadena.

Other State Association and Component County Society News.—Additional news concerning the activities and work of the California Medical Association and its component county medical societies is printed in this issue, commencing on page 50.

*Resident Death Rates and Public Health.**—The development and increasing use of hospitals, as well as the growing migratory habits of the American people, are having an important effect on the methods of evaluating the health conditions in any locality.

Usually the death rate for a city or county is computed by dividing the number of deaths in that community by the population. Obviously, if a large number of nonresidents are attracted to a city because of superior hospital facilities, etc., it is impossible to get an accurate death rate for the city unless these nonresidents are excluded. For example, in 1935 there were 8,483 deaths in the District of Columbia. Of these, 800, or 9.4 per cent, were of persons who were not residents of the District. On the other hand, it is important to include among the deaths for that area those of residents who have temporarily gone elsewhere.

Such a reallocation of decedents is particularly important for certain diseases. In a preliminary study of eighteen states, it was found that 22 per cent of those dying from tuberculosis died in a city or county in which they were not residents. Of those dying from automobile accidents, 34.9 per cent were nonresidents.

*Abstract of paper read by Dr. Halbert L. Dunn, Chief Statistician of the Division of Vital Statistics, Bureau of the Census, at the annual conference of State and Provincial Health Officers of North America, 1937.

EDITORIAL COMMENT†

**THE PHYSICIAN AND THE CHILD
AT SCHOOL**

When a tired business man goes to his personal physician for medical counsel, he not only is given a complete physical examination, but his history is taken in great detail. This history includes his past and present activities, and the physician considers it as his "activity load," and then, on so considering, and with an understanding of his physical condition, the physician intelligently outlines his daily program according to the indications. A proper diet is devised, his work is limited to his capacity, relaxation or rest periods are arranged, he is supervised as to the types of games he can play at the club, and even the number of holes of golf he may play is limited to the estimated allowance permitted by his physical condition. Every precaution is taken, in other words, to adapt activities to his individual needs. Under such a modified program, and so adapted, this business man will probably carry his "activity load" successfully and without mishap.

It seems justified that similar consideration should be given to the child at school. The child's "activity load" for the most part is his school program. Work required of children at school is comparable to work required of men in the business world. The school load of school children is significant to their health in the same proportion as the business load is significant to the health of business men. The school child under your care is entitled to your consideration of the school program he is carrying.

State school laws control the school program to some extent, but not so drastically that individual modifications cannot be made. Laws have not been written that take into consideration individual differences. One of the greatest challenges to education today is to individualize school procedures. If a school program is to meet the requirements and needs of children, it must be individualized to their differences. If the school in your community is to function adequately in all the phases of its contribution to its pupils, it must have guidance and leadership from outside sources. The physician must make his contribution by giving his leadership and guidance to the schools in his community.

Guidance in educational progress of children in the schools must be controlled by educators, for they are trained for this purpose; but control of the health and physical welfare of these children belongs to the physician. A child attending school handicapped with physical defects should not be expected to compete with pupils who are in good health. The removal of these handicaps

†This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comments by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

is the responsibility of the physicians under whose care these children have been placed. If a physical defect is not remediable, the child should be encouraged to compensate for it. Some of our greatest men and women have overcome handicaps from childhood; but most children, unless unusually superior, are retarded by them.

When the handicap is not removable and the child is unable to compensate for it, the problem can be attacked from another angle. Modify the pupil's school program to fit his needs. It is far wiser to set up a program that a child can successfully proceed with than to allow him to struggle with an overbalanced program with which he is not able to cope. He may become discouraged to the point of turning to other things for an escape or outlet.

This may mean diminishing his school program in some way. You may have his program cut down or give him a half-day program or, in cases of severe physical handicap, you may feel that the child is entitled to home tutor service with which he may remain at home. You will find that some children who are not physically capable of carrying the usual school program will, nevertheless, make satisfactory progress with a program in which a rest period is substituted for one of the class periods, especially in the afternoon. Malnutrition cases may call for extra rest and nourishment while at school when ordered by the physician. Children with nervous symptoms who are overstimulated by extra-curricular activities often improve after diminishing these activities.

Physical education is probably the most adaptable part of the school program. Although it is usually a required course, it is elastic enough in most schools to offer modified physical activity when indicated. Physical education instructors, for the most part, are more interested in the physical welfare of the pupils than are other teachers. A child whom you wish to have very limited physical activity, because of a cardiac or other defect, may be appointed monitor by the physical education instructor at your request. While acting as monitor the child will be spared competitive physical activity, yet receive the socializing values of his contacts with other pupils. Arrangements may be made with the physical education instructor to carry out a special program for any type of physical defect you may have under your care. Schools in which the welfare of the pupils is held above the importance of physical activities will arrange a rest period in place of the physical education period for a pupil when prescribed by a physician, and allow credit for the period.

Physical education instructors may ask, as a return favor, that physicians shall not give physical education excuses promiscuously to pupils who seek them on bases that are not reasonable. This control is necessary for honest coöperation in the best interests of the pupils.

Contact your schools more. Communicate with the teacher or principal by telephone or letter, or let the leader of the school health program know the individual needs of your patient. The schools

are becoming more interested in the all-round development of pupils, and will be grateful for your interest and recommendations.

825 Union Street.

G. G. WETHERILL,
San Diego.

MISTAKES REGARDING VARICOSE VEINS

In injecting varicose veins, withdrawal of blood into the syringe does not prove that the needle is inside the lumen of the vein. Not infrequently the needle may tear the tissue-paper walls of thin veins and cause the blood to be extravasated. This extravasated blood may be aspirated in considerable amounts while the needle is outside the vein, and, if injection is made, sloughs may result!

Phlegmasia alba dolens is far more likely to occur in varicose veins than in normal veins, and cannot occur in veins which have been destroyed by fibrosis and are no longer existent. For this reason, a well-administered injection of varicose veins in pregnancy is a protection against phlegmasia alba dolens. The presence of untreated varicose veins predisposes to milk-leg after delivery; because stasis, as found in varicose veins, is a major factor in causing phlebitis. Injection of veins is indicated in some of the pregnancy patients.

We need to revise our teaching as to the avoidance of round garters in the prevention of varicose veins: Roentgenographic study of radio-opaque substances injected into the veins of the arm and leg shows that the circulation in the superficial veins of the leg is entirely different from that in the arm. When injected into the veins of the wrist, the blood flows upward toward the heart at such a high rate of speed that one must be quick to catch a roentgen shadow of the radio-opaque substance. In the legs, however, the circulation in the superficial veins often is stationary or in a retrograde direction downward toward the feet, until an important communicating vein is reached, through which the blood, by the same roentgenographic study, is shown to pass inward to the deep veins between the tibia and fibula. This has been proved many times.¹ In the deep veins the circulation back to the heart is rapid, and studies of freshly amputated legs show that even very strong circular pressure on the outside of the leg does not obstruct the flow of fluid in the deep veins between the bones, for here they are very thoroughly padded by the deep muscles and by the bones themselves. Round garters cannot obstruct the flow upward in the deep veins, and may be of actual advantage in relieving downward hydrostatic pressure on the unsupported walls of the superficial veins.

Indeed, ever since the Middle Ages, it has been known that pressure on the superficial veins, as by a vein truss or strips of adhesive, or by elastic bandage, relieved varicose veins because it holds up the hydrostatic pressure of the blood. Round garters are probably of actual advantage in cases of bad varicose veins with incompetent venous

¹ Kilbourne, Norman J.: Varicose Veins of Pregnancy, *Am. J. Obst. and Gynec.*, 25:104 (Jan.), 1933.

valves, as the garters hold back this hydrostatic pressure.

High ligation of the saphenous is not a cure-all; in fact, it is only rarely to be advocated. Recent enthusiasm for this operation is not based on historical studies: years ago it was shown that high ligation is permanently successful in only 28 per cent of cases, and is not as likely to result in cure as injection.² This operation of high ligation is known as the Trendelenburg operation for varicose veins. The Trendelenburg test is the test to show whether or not the Trendelenburg operation will succeed. It is only if the Trendelenburg test shows that the valves between the superficial veins and the deep veins in the calf are competent, that the operation will succeed.³

A history of phlebitis does not mean that the deep veins continue to be obliterated. I have yet to see a case where I was convinced that the deep femoral vein remained obliterated over a long period of time. Permanent edema is more likely to be due to perivascular lymphangitis. The greatest danger lies in injection of cases of thromboangiitis obliterans or in cases of arteriosclerosis obliterans.

The injection of varicose veins is not likely to cause pulmonary embolism. In my own experience, covering over 25,000 injections, I have seen only two cases of pulmonary embolism. Both of these recovered after a short illness. Both also occurred years ago at the time of the use of weakly sclerosing solutions, and I have had no cases occurring with modern solutions.

2007 Wilshire Boulevard.

N. J. KILBOURNE,
Los Angeles.

THE LIBRARY MEMORIAL FUND AND THE LIBRARY ASSOCIATES OF THE LOS ANGELES COUNTY MEDICAL ASSOCIATION

With the taking over of the Barlow Medical Library by the Los Angeles County Medical Association, and its removal to new quarters, the immediate and most pressing of its needs—more space—was fulfilled. But a library needs more than space. It needs physical equipment, librarians, current periodicals and current texts. The responsibility for providing these was assumed, of course, by the County Society. For the present, then, the material needs of the library are being met.

As for the future, and for what might be called the spiritual needs of the library, no provision had been made. A library must be more than a convenient and accessible storage place for books. It must be a living, growing servant of its community. It must have a spiritual, as well as a physical identity. It must have character, and it must impress this character on the community which it serves. To create these attributes, a group, the Library Associates of the Los Angeles County Medical Association, was organized, and

to that end the Associates are publishing, in the Los Angeles County Society Bulletin, a series of descriptions of the library's most interesting books, while planning to hold exhibitions of medical, historical, and bibliographic material. Definite efforts, also, are being made to make the study of the history of medicine an important part of its activities. This is intended not only to give vent to the interests of those historically inclined, but also to emphasize the fact that books of historical interest are not merely embellishments of a library's equipment, but a most important factor in creating the character that was spoken of before.

Since but little provision was made for the purchase of materials and books of purely historical interest, the Library Associates have created a Library Memorial Fund, and members of the County Society are urged to send to this fund what moneys perhaps would otherwise be spent on flowers for a deceased member. Acknowledgment of the gift is then sent to the relatives. Thus, instead of ephemeral flowers, a permanent memorial is established. Bookplates identifying the purchases made from the Memorial Fund insure the permanency of the memorial.

To the Memorial Fund will also be added such other gifts and bequests of money, books, instruments and the like as may be the Fund's good fortune to receive. The Library Associates hope to make the library "not a luxury, but a necessity of life."

FORM FOR CONTRIBUTION

To the Library Memorial Fund
Los Angeles County Medical Association
1925 Wilshire Boulevard

In Memory of \$.....
Please send a card of acknowledgment to

FORM FOR BEQUEST

I hereby give, devise, and bequeath to the Los Angeles County Medical Association, a nonprofit corporation, the following described property: [books, money, etc.] to be administered as part of that corporation's Library Memorial Fund, and to be known as the [here insert name desired] Memorial.

672 South Westlake Avenue.

HYMAN MILLER,
Los Angeles.

In all of the 160 years of American history, only 244,000 American soldiers have been killed on the field of battle or died from wounds obtained while fighting in our wars. In the past twenty-five years more than 375,000 American mothers have died from causes associated with childbirth. During this same twentieth century period, the American records of the highest maternal death rate in the world save Scotland have remained constant. By this women can be made to understand that prenatal care is urgent in the second and third month instead of the seventh, where records prove it usually begins. Then a tremendous advance has been made toward reducing maternal mortality.—*The Commentator*.

² Berntsen, A.: *Nordiskt Med. Arkiv.*, 62:61, 1927.

³ Trendelenburg: *Beitr. z. Klin. Chir.*, 7:195, 1890.

ORIGINAL ARTICLES

THE EDUCATION OF A DERMATOLOGIST*

By THOMAS J. CLARK, M.D.
Oakland

MEDICAL EDUCATION

THE requirements in education fitting an individual to practice medicine today are necessarily centered about the studies that develop facts in chemistry, physics, anatomy, physiology, biology, pharmacology, etc. Anticipating the special medical preparation, the quality of the training which the student receives in high school, and in the academic college, largely determines his final success in medicine. This foundation work orients the student as a social unit with reference to the past, the present, and the future. In brief, it breaks away the protective shell of his youth, allowing him to go forth to explore the world.

We are all creatures of habit actions. These rule-o'-thumb, or automatic actions, will satisfy in most of our problems; but to direct the successful outcome in many other situations, real thinking is necessary to form a judgment for particularized action.

PRIMARY TRAINING

Educators in our high schools and colleges are at more or less variance as to the selection of material that best suits the purpose of mind development, by increasing a student's knowledge of reading, writing, and arithmetic. This primary training of his mind consists of observation, recording the observations, the realization of a problem and taking the logical steps for the solution of the problem. The youth has environmental forces that elders help him to overcome; but in this helping process it is vital to draw him out so that he may shoulder his responsibilities, thereby building up his courage to overcome difficulties and increasing his confidence in his own abilities.

ACADEMIC TRAINING

To enlarge the scope of his mind and educate him, the academic colleges offer to the student a varied list of courses. The classics form the foundation for these courses. These works of outstanding individuals are the priceless recorded ideas and actions of man's past. The college presidents recommend for study history, languages, literature, philosophy, psychology, mathematics, science, religion, and government, to which are necessarily added physical training and sport. Four years of attention to such mental and physical discipline will give a broad view of life and provide a fund of facts for the student to mull over and form ideas of his own. He should now be able to think clearly and make decisions of value to himself and others. During vacation intervals, valuable manual training can be secured in work that will add to his experience both pleasure and profit.

If the student has now made his decision to become a physician, he is confronted with the choice of a medical institution. This question is answered, for the majority of students, by economic necessities. However, at the present time, excellent facilities are available throughout the United States in all population centers. Fine buildings and elaborate equipment do not of themselves offer advantages: good teachers are essential. Small classes give more personal contact, arousing interest and enthusiasm for the work at hand. During the first two years of the medical course, the factual material is voluminous, with some relief to its monotony by laboratory work. Friendly groups of fellow students may organize quiz meets for work in anatomy, physiology, bacteriology, etc., thereby profiting by offhand talks among themselves. Constant repetition is desirable.

Early in his career as a medical student the use of a microscope will offer an incentive to form a collection of specimens that are made for study purposes. Carefully prepared, such specimens will form the nucleus of a valuable personal museum for his use in repeated study and comparison. Gross specimens in anatomy should be secured and added to this museum. The art of photography is always an aid. The practice of making drawings of physiological experiments, with full written notes, can be made the threshold for the writing of clinical histories.

In the courses for study, during the third and fourth years, a choice will be allowed. It would be well to select those that add to the broad science base upon which the art of medicine is erected rather than too early study of specialized work. Physical examination of patients early and often should be encouraged so that the memory picture of the normal body organs will become fixed. Laboratory work in all the standard routines must be mastered, leaving theoretical data gathering to some future opportune time.

A nucleus of his medical library can be started during his student days that brings into play the joyful habit of adding regularly, volume after volume, to the end of his days. The crowding of his study time should not exclude a portion for medical history. Learning the lives and work of the men who have overcome great difficulties to advance our knowledge of scientific foundations for the use of medicine is truly inspirational.

INTERNSHIP

The year of internship should by preference be taken in a general hospital where the different services are conducted by a staff of specialists. Appointment to a hospital other than that of his Alma Mater offers opportunity to receive instruction under the guidance of a new set of teachers who probably will inspire enthusiasm from angles other than formerly.

In this hospital year, the student comes more in contact with the applied knowledge of medical training. His efforts should be directed to three main objectives: first, making himself competent to examine a patient, to enable him to arrive at a

* Chairman's address, Dermatology and Syphilology Section of the California Medical Association, at the sixty-sixth annual session, Del Monte, May 2-6, 1937.

diagnosis in order that satisfactory treatment may be ordered; second, a review of the theoretical medical teachings of his collegiate courses, preparatory for the examination by a State Board granting him legal status to practice his profession; third, the tentative choosing of his future specialty in medical work. This decision to limit his study to a certain specialized branch of medicine should not be followed up too exclusively as yet, but rather in the sense of a gradual leaning toward, or forethought for, his chosen line.

COMMENT

Let us now briefly survey the results in the metamorphosis of our dermatologist. He has first been a student of general learning to fit himself into the scheme of society as one of its units. He has thought out his plan of life, making a decision to study medicine, and has devoted four years in the theoretical studies of those sciences that form the basis for proficiency of action in the practice of medicine. He has served his year of practice under guidance as an intern in a general hospital of his choice. He has passed the legal tests establishing his competence in his profession. He has also made the fateful decision to further study in order to practice in his mature years the art of dermatology. What now to do? Is it best to continue as a student seeking his postgraduate dermatological training in the succeeding two or three years, or shall it be a putting off of his student robes for the actual service in medicine? The answer should come from the necessities of the work in treating skin diseases. Those of experience know how essential it is for the dermatologist to have a comprehensive understanding of the body as a unit in forming his judgments in etiology, diagnosis, prognosis, and treatment. John Hunter, in the past, said to Jenner, "Don't think—try!" Jenner wisely took his advice and practiced the art of inoculation in the early work of prophylaxis. Our student surely will profit if he does likewise, going into general medical practice for a period, let us say, of four years. These years of application of his theoretical knowledge will give him finesse in the psychology of his work, will ripen his judgment, give him more independence and, most valuable of all, heighten his powers to think clearly.

VALUE OF EXPERIENCE IN GENERAL PRACTICE

In a conversation with Professor Erich Hoffmann of Bonn, Germany, during his recent visit to San Francisco, he strongly advised the experience of general practice before taking up postgraduate work in dermatology. He mentioned his own experience of several years' work in the army, where he did general medical work, later taking up dermatology.

Having passed all of his tests and been received into the medical profession as a legal practitioner of the art, our fledgling doctor will be wise to avoid the many beckoning pitfalls. He is now a professional man, with service his watchword, to build an honorable reputation. His education has fitted him to form a judgment for action based upon a knowledge of the facts at hand, carefully thought

out, against the alternatives. He should have the courage of his convictions, and guard his actions for the highest service to be rendered to his patients. The Hippocratic oath can be lived up to and add to the stature of his reputation.

Four years of his life now devoted to the general practice of medicine provides a wide field for experiences. The application of his knowledge develops his mental capacity. The first-hand contact with his patients as "cases" fires his desire for study, and leads him on to more and more gathering of knowledge. With careful observation of his cases, he will find his diagnostic ability improving. Rational treatment keeps gaining. A study of his mistakes jolts him to a higher plane. He will act wisely if he calls, for counsel, men of experience to help guide his actions in difficult cases. This is true both to gain the knowledge of a more experienced fellow practitioner and to have his comforting support for the grave responsibility the case entails.

The horizon of his medical life keeps extending by making it his duty to accept service in the local clinics and hospitals, where he will see many patients that provide material for study.

Coöperation can be given to the medical societies, with friendly help in any division of their activities. These contacts with others in his profession make him realize that it is not he alone who must work and serve to accomplish the duties of the passing days.

Subscriptions to journals and medical literature are a necessary part of his equipment. Medical libraries provide a wider field to be made use of on occasion, but cannot take the place of the handy journal or book in the office or home.

DERMATOLOGY IN GENERAL PRACTICE

In the general practice of medicine there will be many opportunities to observe and study examples of common diseases affecting the skin. By carefully noticing the type of lesions of primary nature with their successive changes and variation to their final resolution, one fixes the "clinical picture" in his mind, thus making for proficiency in diagnosis. Opportunities will not be lacking to study scabies, the pyodermias, eczemas, psoriasis, urticarias, contact dermatitis, lues in many manifestations, nevi, epitheliomata, the keratoses, the exanthemata, and probably many more. He will soon discover that very careful observation of the objective symptoms is a primary requisite to even a group diagnosis of skin diseases. As for treatment, it will be a puzzle that can be solved only by referring the patient to a dermatologist. The conscientious general practitioner will soon learn his limitations and, by consultation in his difficult problems or referring the patient to the proper specialist, he adds to his reputation for service.

POSTGRADUATE TRAINING

Now that our candidate has thoroughly prepared himself in the firm foundations of medicine he can much more readily appreciate and absorb the postgraduate instruction.

The universities in America now offer courses in postgraduate dermatology of the highest stand-

ards, making it feasible for a student to secure in all branches the training that will establish his competence in his specialty before a trial board.

It is advisable to take this work in the large centers such as Chicago, St. Louis, Boston, New York, Philadelphia, or Baltimore.

AN OUTLINE OF A YEAR'S WORK

The outline of a year's work would be made up with this schedule for the first six months:

1. Anatomy, physiology, and embryology of the skin.
2. Parasitology of the skin, including bacteriology and mycology, and the defensive mechanisms.
3. Biology and chemistry of the skin.
4. Photography of skin diseases.

For the last six months, the following:

1. Clinical dermatology, with differential diagnosis.
2. Therapeutic measure for skin diseases, including the use of physical agents, x-ray, radium, etc.
3. Studies in diet and the chemistry of diets.
4. Pathological studies of the skin.
5. Preparation of moulages.

EUROPEAN SCHOOLS

Having completed these courses, our candidate for high professional attainments envisions material in plenty to practice upon. Now would be the opportune time to take a trip abroad: for the density of the population in the European nations makes possible unlimited material for clinical study.

Time is precious; however, the broadening of understanding one attains by travel and study in different centers highly repays the effort spent at this point in the student's career. Valuable work can be seen and profitable study made of it in London, Paris, Berlin, and Vienna. In a few weeks' time, at each of such places a wonderful amount of clinical material can be examined and classified, and pathological data secured. Well-trained men differ in their approach to a problem. They probably will agree as to a diagnosis, however; in treatment methods they will vary, and the student, seeing work in various clinics, will now form his own opinion to attain the best results.

IN CONCLUSION

Our dermatologist is now thirty years of age, and is prepared to seek a field of practice where he can be assured of a successful career. In concluding, one may say with assurance, that time and patience, with efficient effort, are required to attain the knowledge for proficiency in treating skin diseases. It is necessary to realize that the work is in a competitive field, with the rewards coming to those individuals who are most competent. The highest professional and ethical standards are fundamental in the contact with patients and brother practitioners. The training of a dermatologist can be spoken of as a necessary public service, the character of the work being such that the other departments of medicine are not fitted to successfully treat these cases. It is a wide field for endeavor, skin diseases being a common illness.

400 Twenty-ninth Street.

HEALTH DEPARTMENT REMEDIES FOR SICK HOUSING*

By J. C. GEIGER, M.D.
San Francisco

DISCUSSION by Walter M. Dickie, M.D., San Francisco; George Parrish, M.D., Los Angeles; Alex M. Lessem, M.D., San Diego.

FOR many years departments of public health have condemned dwellings as unfit for human habitation, and places of business as insanitary and rodent-infested. In a sense, then, the efforts applied by departments of public health to the problems of housing and health have been negative and destructive.

When we have a polluted well and persons drink water from this well, the usual health procedure is to close the well. Likewise, when milk does not come up to certain bacteriologic standards and is derived from sick animals, namely, animals that have not been tested for tuberculosis, the product is usually destroyed. We recognize, however, that the best plan for the community is a chlorinated water supply, sometimes reinforced by filtration, and a pasteurized milk supply, obtained from healthy animals.

If a health department decides in its wisdom to destroy tenements that are unfit for human dwellings, then it is equally logical to demand decent dwellings for replacement.

THE AMERICAN HOUSING PROBLEM

To the average health officers of American cities the problem quite often presents difficulties; and it is no novelty that some of these difficulties may result in political backfires.

Many of these dwellings are the forgotten houses, derelicts from the past, forsaken by their owners and left as decaying, run-down structures, where people of low incomes must live. They are the first cousins to the slum tenements: blights on the city—socially, economically, and from the standpoint of public health.

America has always had a consciousness toward slums, and there is seen today a dawning perception of our inherent right to decent conditions of living. Bad housing conditions must have cost this nation so much that posterity cannot begin to liquidate the debt. The vast army of the unemployed may always remain industrially inefficient because of disadvantageous living conditions. Forbidding atmospheres of the home, the school, and the shop may exert themselves in many problems, even to become a cause of ineptitude. A safe water and milk supply, and proper sewage disposal, are among the best assets a city can have.

IS HOUSING A MAJOR PUBLIC HEALTH PROBLEM?

The question naturally presents itself, "Can housing be accepted as a major public health problem?"

* From the office of the Director of Public Health, City and County of San Francisco.

Although it would seem no one could possibly question the necessity of fresh air and sunlight, yet there are found apartment houses being built with dark rooms for no other reason than that it is easier to do it that way. To prohibit any room of any building without outside light and air runs counter to that intense individualistic attribute to cover every foot of the land, irrespective of value. The smaller the geographical area of cities the more crowded the living conditions are apt to be found. Here the playgrounds and social centers should be distributed and made available. These civic necessities will cost the city less in police and jails, and less in hospitals and relief.

There are statistics available, especially as to district mortality, in Cleveland and Detroit, which demonstrate that there is a definite relationship between bad housing and high death rates. One must not assume, however, that such death rates are entirely due to housing. These crowded areas, with crowded tenements, are filled with persons of the lower income groups, and in many of these persons there is a definite physical and mental inadequacy which may contribute to these excessive mortality rates. The experience in Liverpool, when contrasts were made to slum areas and suitable tenements, there were definite lowered death rates and infant mortality, and tuberculosis in the latter.

However, there is another side to the picture: that new houses may involve higher rents and, therefore, limited food supplies, and any effects of good housing may be unbalanced by the bad effects of insufficient food.

The forgotten house, with its insanitary toilets, and sometimes its overflowing cesspools, its overcrowding, the lack of light and air, the coldness and the dampness, the lack of screening against mosquitoes and flies, and the fire and accident hazards, all lead to a higher mortality. Too often we regard public health as a process measured by a statistical yardstick. There is more to health than just remaining alive. There should be that fullness of life in which the statement has been made by one of our philosophers that simply to live, move, and breathe should be a delight.

ILL EFFECTS OF POOR HOUSING CONDITIONS

Undernourishment causes lowered vitality; living in overheated atmospheres decreases efficiency; excessive odors do interfere with appetites and cause mental disturbances; inadequate illumination often depresses, overcrowded conditions are attractive neither morally, physically, nor mentally, and the unattractive home increases juvenile delinquency. There must be certain essentials to a sound family life, and today one hears the expression that the American home is the automobile or, at least, a trailer.

It is a fact that San Francisco represents more than any other city, excepting perhaps a few, a concentration of population in more or less restricted areas, which results in the overcrowding of the lot and block areas of these respective districts.

Health officers have long recognized the intimate relationship which overcrowding bears to health. There is little doubt in the minds of sanitarians that poor housing is conducive to lowered vitality. Overcrowding is directly related to high infant mortality. When there is more than one person per room, infant mortality may rise even 50 per cent greater than in areas in which there is more than one person per room. Increased incidence of disease, particularly influenza and pneumonia in the winter months, is a regular occurrence in the crowded areas.

OVERCROWDING

Overcrowding means close contact. Close contact propagates and assists in the spread of tuberculosis, making it impossible to segregate the patient and thus protect other members of the family. All communicable disease is helped to spread by overcrowding, and this is particularly true of influenza and pneumonia. Overcrowding bears an important relationship to the spread of social diseases, and also contributes to mental and moral delinquency.

What is the remedy for overcrowding?

We must encourage the construction of individual dwellings as opposed to the multiple type dwelling. The single or two-family house with surrounding yard space does reduce overcrowding. Adequate light and ventilation are more readily obtained. Yard space invites people to spend more time in the open. Children can play out of doors. In the multiple dwelling, covering most of the lot space, the growing child must remain indoors or play in the streets. The latter is an unfavorable environment, as it increases street accidents and affects not only the physical but the moral background of the child.

It is true that single dwellings must be built in the outlying sections and, therefore, adequate transportation is an interesting factor in promoting public health. Unfortunately, from time immemorial property has stood the brunt of government regulations. Taxes mount; the property owner must increase his return. This he does. As taxes mount upward, the buildings mount upward, there being a necessity for the greatest possible monetary return and, therefore, greater human occupancy of small portions of land.

It can be considered that there is abnormal overcrowding in practically every city in this great America. As a result, families may be forced into insanitary and dangerous quarters. It is not difficult to recognize that health authorities are powerless to vacate such premises under the present economic conditions. Sometimes there are no places better or even as good to which these families can move.

FEDERAL COÖPERATION IN SLUM CLEARING

Apparently the Federal Government is trying to correct the conspicuous lack of coördination which has been manifest in America. It is attempting to reach a solution of our housing problem in order to remedy the conditions which not only may affect the health of the people, but also

the stability of our government. Every American should have a plot of ground and a breathing space for the promotion of health, if health is to be promoted.

The term "slum clearance" is quite obnoxious to many people, particularly to the dweller in the city. The low-cost and low-rent houses under federal auspices, or through philanthropic foundations, or limited dividend companies, should be a reality. There is no better reason from a public standpoint why the state as well as the city should not offer some way of subsidizing homes for the poor. This has been true both in England and Germany, which have made substantial progress in this direction. The lack of any consistent program in the United States is a striking contrast to what has been accomplished in Europe and on other continents of the world. It cannot be said up to the present that the United States has any housing program whatever, and quite often the new dwelling units erected in a city do not reach in numbers the homes that have been destroyed by fire.

GOVERNMENTAL AGENCIES AND HOUSING PROBLEMS

The difficulty with us apparently is that we are romantic enough to cling to the individualism of the past and think that all the housing problems can be solved by private commercial enterprise. It may be brutal to assert that in some of our populations the income is too low to permit housing of the standards of health that we desire. Either the lower income groups must have wages raised, the standards to be set by the Government, or the Government must subsidize housing for this lower income group. If such be the case, then there is need for a permanent Federal Housing Agency to stimulate and coordinate local initiative. It has been estimated that there is need for at least six million low-cost dwelling units, and just to build a few of these at a few thousand dollars apiece would call for federal expenditures in billions of dollars.

Not only should the Federal Government realize what the problem means, but likewise should the state and the city. To build a house is not satisfactory to the health officer. The house must be correlated with town planning, with the type of architecture, with heating, ventilation, lighting and with home safety. An intelligent community today seeks pure milk, pure water; it knows the value of diphtheria immunization, knows the problem of the control of tuberculosis, and is now beginning to understand the problems of syphilis, and that our efforts for suitable hygienic houses for American people is well worth while.

CITY AND COUNTY OF SAN FRANCISCO

The city and county of San Francisco has in the last ten years, through its Department of Public Health, condemned and destroyed 2,100 buildings, and there remains an estimate of 475 buildings yet to come down. The outlook for the future of the sanitary science relating to housing is hopeful, and San Francisco may lift this com-

munity necessity out of the dark ages and lead all America. After all, sanitation and good housing are man's best defense against his surroundings, and even his financial adversities.

In many large health departments this problem of housing has many heterogeneous factors, and there must be a special department to deal with them. It is often difficult to get people to realize how important the subject really is. Housing in the dictionary means something to do with the trapping of a horse. We must all realize, however, that housing has something to do with habitation of human beings, and the subject must be approached from a public health, social, economic, architectural, and structural viewpoint.

Civic Center.

DISCUSSION

WALTER M. DICKIE, M. D. (State Building, San Francisco).—The relation of bad housing to tuberculosis was recognized early in the organized campaign to control that disease. It is only recently that proper recognition has been given to the part that bad housing plays in the incidence of other diseases. This applies not only to those diseases that are grounded in faulty social conditions, but also to those that are spread by contact—common colds, influenza, epidemic meningitis, and the respiratory infections generally. There can be no doubt that overcrowding and opportunities for close contact with relation to faulty housing constitute important factors in the spread of communicable diseases.

Faulty housing conditions are not confined to large centers of population. High rentals have driven a considerable proportion of the urban population into the outskirts of the cities, where shacks without facilities for ordinary sanitation are built upon cheap land, and into automobile, trailer and squatter camps. Considerable difficulty is experienced by local health officers in condemning such places. The old adage, that a man's home is his castle, applies to both palace and hovel. Progress is being made, however, in cleaning up these settlements; the menace of typhoid fever alone warranting continued activities in their abatement.

Faulty housing, in general, is based upon a reduced economic situation, and the cycles of prosperity bring new buildings to occupy the positions occupied by the old dilapidated structures. The progressive health officer, therefore, is able to accomplish much in the elimination of dark, insanitary tenements and, as a result, the general health of the community is bound to improve.

✱

GEORGE PARRISH, M. D. (2188 Live Oak Drive, Los Angeles).—Dr. J. C. Geiger, San Francisco Health Officer, has selected a major health subject and handled it in authoritative fashion.

Primarily, bad housing leads to the downfall of more people than all other causes. There can be no question but the three great scourges of mankind—poverty, disease, and crime—are in a measure due to bad housing. In order to successfully combat bad housing, crime, disease, and poverty, one must understand their relationship. Living in a house that is damp or dark, or has a defective lighting system, or bad plumbing, or is poorly ventilated, lowers resistance to disease. Too many families in one building, or the crowding in rooms through ignorance or racial habit, breeds familiarity and crime. Have you ever thought of the crimes arising from such places? No doubt the poet must have had in mind just such institutions when he wrote:

"Vice is a monster of so wondrous mien,
As, to be hated, needs but to be seen;
Yet seen too oft, familiar with her face,
We first endure, then pity, then embrace."

Keepers of penitentiaries, and superintendents of reform schools will tell you that crime is due to lowered resistance, low vitality, and to minds overclouded by brooding among shadows. The relationship of housing to vice is that

the dark room is the mother of shame. Congestion makes vice inevitable. Promiscuous living promotes vice. The child of the slums is educated in the school of vice.

In the ramshackle, gloomy, dirty house, there is everything to degrade, everything to suggest and foster crime. Better and cleaner homes are essential to good health and happiness.

Housing has an intimate relation to health. Housing influences morbidity (sickness) and mortality, but in a rather indirect way. It is hard to separate the factors of crowding, personal habit, poverty, food, and other hygienic and sanitary influences from housing conditions. Housing conditions may be taken as an index to the hygienic habits of the occupants. Although housing is largely a social and economic problem, such an authority as Milton S. Rosenau believes its supervision should come under the purview of good health administration.

Good housing includes a consideration of construction, site, soil, drainage and dryness, water and wastes, lighting, heating, ventilation, size, arrangement and use of rooms, facilities for cleanliness.

It has long been realized, even before the reasons were understood, that the incidence to tuberculosis diminishes with improvement in housing conditions. This is a common observation in the stabling of cattle, as well as the domiciling of man. In addition to raising the standard of living, better houses lessen the chances of contact infection, afford better air and more sunshine, and tend generally to the well-being and uplift of mankind. House infection is only contact infection. Municipalities do well to enact and enforce stringent laws regulating the construction of houses, offices, stores, and warehouses. Congested and squalid slums are a disgrace and a menace.

Germs are social climbers, and many a palace is invaded with an infection from a near-by alley. Philanthropists cannot do better than assist in improving the housing conditions of the poor, and thus help the art of hygienic living.

✱

ALEX. M. LESEM, M.D. (739 Fourth Avenue, San Diego).—The subject presented by Doctor Geiger clearly shows that poor housing *per se* is not definitely responsible for sickness and death, and that bad housing and mortality rates are not necessarily related. There must be a combination of the following conditions: (1) Bad housing; (2) Insanitary conditions; (3) Poverty; (4) Ignorance; (5) Social maladjustments; (6) Delinquencies; (7) Unsatisfactory labor conditions in industry; (2) Racial conditions chiefly related to immigration, and failure of the individual to adapt himself to a new environment.

The rapid increase in population of our California cities has added another problem. The establishment of manufacturing plants, grouped together in industrial centers without planning for satisfactory housing conditions of the employees, and particularly the lack of cheap transportation for the worker to and from the factory is a great problem. Lack of adequate transportation is a big factor in preventing the worker from placing his family in a more desirable sanitary and healthful environment.

The Health Department has no satisfactory remedy.

An educational program comprehensive in scope and directed toward community and personal hygiene has met with very limited success in correcting the bad housing conditions.

Condemning insanitary dwellings has not solved the problem, as the occupant often moves from bad to worse conditions.

The remedy can be solved only by a combined effort of the various civic and governmental agencies, interested in a remedy for the health hazards, economic, social and other maladjustments associated with insanitary housing problems.

Comprehensive planning for the prevention of recurrences of the present deplorable conditions should be undertaken. This will require a correlation of the efforts of health departments, planning commissions and other civic and governmental agencies. The responsibility of industry should be awakened to the necessity of locating factories accessible to the homes of the workers, in respect to cheap transportation and moderately priced homes, with good sanitary environment.

Health departments functioning in metropolitan areas with a high assessed valuation and low governmental per capita costs, have been more successful in alleviating insanitary housing conditions than other health organizations set up in a sparsely settled community, with low average assessed valuation and high governmental per capita costs. The latter must secure state and federal aid if immediate relief is contemplated.

The city of San Diego represents a typical picture of the average low assessed valuation group of cities. The Census estimate is approximately 172,000, but at certain seasons the post office serves a population of over 190,000. This large fluctuating population presents not only a housing problem, but a serious health problem in regard to epidemics. The tourist or transient represents a cross section of every walk of life, some seeking recreation, others employment, while still others looking for material relief or benefits from a favorable climate. Recently an outbreak of smallpox occurred simultaneously in a first-class hotel and in a trailer camp. The trailer camp has of late been a problem for the Health Department. It is insanitary, but not to a degree that would justify condemnation or abatement proceedings.

The hotel had met all sanitary requirements, yet the spread of smallpox was more rapid and many more cases occurred in the hotel than in the trailer camp. This point merely emphasizes the fact that certain diseases bear no direct relation to insanitary conditions.

Preventive medicine and personal hygiene are important and essential where bad housing conditions exist. Health education can be disseminated by personal contact with the family through the medium of the public health nurse and sanitary official, and often the standard of living can be improved by intelligent application of public health principles.

Every health officer should have a definite picture of the type of people living in his community, considering the transient or fluctuating group, and what facilities the city offers for their housing.

The following figures for housing units in the city of San Diego clearly show the facilities available for a stable and transient population, and what might happen under extraordinary circumstances when the influx of transients exceeds the housing quota.

Permanent dwellings:

Residences	52,000
Duplex	1,814 units

Temporary dwellings:

Apartments	7,837 units
Flat buildings	2,561 units
Bungalow courts	2,680 units
Automobile courts	483 units
Hotel accommodations	12,270 units
Trailer camps	6
Camp grounds, including community facilities	2,451 units

Since January 1, 1934, by order of the Health Department, twenty hotels and rooming houses have been razed.

There are on file, as of January 1, 1937, one hundred and thirty notices of condemnation for dwellings unfit for human habitation, with many other sanitary improvements being held up pending some social or economic adjustment for the families occupying dwellings with inadequate sanitary facilities.

The automobile trailer is our most recent health hazard; it is the outstanding step backward in the American standard of living, and no legislative measures can be enacted with regulations too drastic for its control. These trailers are rapidly becoming a menace to traffic on the highways and a hidden source for epidemics.*

* Editor's Note.—The city of Pasadena has adopted an ordinance that provides for the sanitation of automobile-trailer camps. This measure is comprehensive; it covers sanitation, supervision, and fire protection in automobile-trailer camps. Zoning requirements, lighting, electrical connections, and limits of stay are also covered. Provision is also made for the storage of trailers on private property. Fees are provided for the maintenance of sanitation and supervision of such camps, and penalties are provided for violation of the ordinance.

PERIPHERAL VASCULAR DISTURBANCES: EVALUATION OF METHODS FOR THEIR STUDY*

By ALBERT H. ELLIOT, M.D.

RICHARD D. EVANS, M.D.

CALEB S. STONE, M.D.

and

PERCIVAL A. GRAY, M.D.

Santa Barbara

DISCUSSION by William J. Kerr, M.D., San Francisco;
William Dock, M.D., San Francisco; William H. Leake,
M.D., Los Angeles.

THIS paper is a review of our experiences with certain methods proposed for the study of peripheral vascular disturbances, as applied to a small but carefully studied group of representative patients. A correlation of the results will be interpreted in terms of practical application, and the indications for each method of study will be outlined.

GROUPS HERE CONSIDERED

For purpose of discussion the procedures may be divided into those which primarily measure the usual state of the circulation, and those which attempt to measure the maximum circulation possible over and above the hindrance imposed by the disease process. The first group of tests throws light upon the presence and extent of structural alterations; the second group attempts to measure the physiologic compensation for the disease process and the extent of the circulatory reserve. In most instances this resolves itself into an evaluation of the collateral circulation. There is a certain amount of overlapping in the information obtained from the application of these two groups of tests.

Group one comprises: (a) Oscillometry, (b) Arteriography, (c) What we have termed the "flushing time," (d) Production of claudication pain with the circulation free and occluded. Tests of the second group measuring the maximum possible increase in blood flow are: (a) Comparison of skin temperature readings at symmetrical points before and after the induction of vasodilatation, (b) Measurement of the digital pulse volume before and after dilatation.

The technique of each of these methods will be discussed, and the results briefly evaluated.

TESTS MEASURING THE ORDINARY STATE OF THE CIRCULATION—THE OSCILLOMETER

This instrument visually represents the amplitude of the pulse wave in the major arterial trunks. By the use of various-sized cuffs, determination may be simply and quickly made from above the knee down to and including the foot. It has been our experience that simple palpation of the accessible arteries is frequently misleading in normal persons in whom the dorsalis pedis or the posterior tibial pulses occasionally are not evident to the finger. The oscillometer has never failed to give

a satisfactory reading in such individuals. Its primary usefulness, however, is in ascertaining the presence of a pulse wave in portions of the arterial trunks, which cannot be palpated. This makes it possible to both identify and locate partial or complete arterial block by the sudden fall-off or cessation of the needle movement as the cuff is moved down the extremity. It should be remembered that a non-pulsating artery is not necessarily totally occluded, and hence such a finding must be interpreted with some caution. Occasionally extremely high readings are found above the point of block, and this may be helpful as confirmatory evidence. We do not believe that the oscillometer readings can be interpreted in terms of the kind of arteriosclerosis present as is contended by Friedlander.¹ Nor do we feel that the instrument is of much help in differentiating between a lessening of the arterial pulse due to spasm as against organic disease. In normal individuals we have found lowering of the oscillometric readings following the induction of generalized vasodilatation.

An oscillometric survey should be given every individual suspected of having vascular disease and, as Mone Reid suggests, we feel that this instrument should be available to every physician practicing medicine or surgery.

ARTERIOGRAPHY

The introduction of a contrast medium into the arterial tree, for purposes of x-ray visualization, has in recent years found an accepted place in the study of occlusive arterial disease. Colloidal thorium dioxide, in spite of its radio-activity, has proved to be the medium of choice, principally because its use is entirely unaccompanied by immediate symptoms on the part of the patient, and extravasation may occur about the point of puncture without injury to the tissues. In our hands 15 to 20 cubic centimeters of the 25 per cent solution is ample for adequate visualization of the arterial tree of the lower extremities. The technique used is similar to that of Veal and McFetridge,² Allen and Camp,³ and others, with the exception that immediately following injection of the dye and the taking of the first plate, we block the circulation above the knee by a blood-pressure cuff which allows ample time for the changing of the plates and the arrangement of the leg so that films may be obtained of the leg and foot.

The primary usefulness of arteriography is in determining the exact location of the point of narrowing or block which may exist in the major arterial trunks. It fails to demonstrate in many instances the degree and adequacy of the collateral circulation, which is better judged by other methods of investigation. In this sense the information obtained is anatomical rather than functional. It may also fail to differentiate occlusion due to spasm from that of an organic nature. Errors in technique, such as use of an inadequate amount of dye, faulty timing of the plates, etc., may lead to erroneous conclusions. If, however, these considerations are borne in mind, and the interpretation of the plates is made with due re-

* From the Peripheral Vascular Clinic of the Cottage Hospital, Santa Barbara.

Read before the General Medicine Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.

TABLE 1.—Flushing Time—Normal Arterial Circulation

Age	Sex	Diagnosis	Symptoms Physical Findings	Oscillometric Readings		Flushing Time		Additional
				Right	Left	Right	Left	
66	M	Arthritis toe, first right	Pain Redness and warmth	Good	Good	6 sec.	6 sec.	
55	F	Hypertension		Good	Good	2 sec.	2 sec.	
55	M	Diabetic neuritis	Weakness Paresthesias, both legs	Good	Good	2 sec.	2 sec.	
71	M	Varicose veins	Edema leg, left	Good	Good	4 sec.	5 sec.	
56	M	Neuritis, femoral nerves	Bilateral pain of femoral distribution	Good	Good	2 sec.	2 sec.	
73	F	Diabetes		Good	Good	2 sec.	2 sec.	Left leg previously amputated. No symptoms on right. Good temper- ature response from induced vaso- dilatation.
31	M	Phlebitis calf, right	Migratory pain Tender nodules in veins	Good	Good	6 sec.	8 sec.	
60	M	Varicose veins	Bilateral varicosities	Good	Good	6 sec.	2.5 sec.	
64	M	Varicose veins	Varicosities leg with ec- zema, right	Good	Good	5 sec.	3 sec.	
75	F	Senility	Burning in soles of feet	Good	Good	4 sec.	4 sec.	
64	M	Hypertrophic arthritis Gout	Deformities of foot joints	Good	Good	2 sec.	3 sec.	
34	M	Normal		Good	Good	3 sec.	Not done	
30	F	Normal		Good	Good	3 sec.	3 sec.	
48	M	Thrombophlebitis	Phlebitis deep leg veins with bilateral edema	Good	Good	2.5 sec.	5 sec.	
62	M	Diabetes	Phlebitis iliac veins with bilateral edema	Good	Good	4 sec.	4 sec.	
64	F	Thrombophlebitis		Good	Good	2 sec.	2 sec.	
71	F	Hypertension	Superficial infection toe, third left	Good	Good	3 sec.	Not done	
47	M	Diabetes	Palms forearm tender ra- dial neuritis, right	Good	Good	5 sec.	6 sec.	
46	F	Neuritis		Good	Good	4 sec.	2.5 sec.	
52	M	Varicose veins	Bilateral varicosities	Good	Good	2 sec.	2 sec.	

TABLE 2.—Flushing Time—Arteriosclerosis

Age	Sex	Diagnosis	Symptoms Physical Findings	Oscillometric Readings		Flushing Time		Additional
				Right	Left	Right	Left	
48	F	Intermittent claudication	Claudication pain right thigh. Absent pulses leg, right.	0—below knee	Low whole leg	T3, 4, 5, 30 sec.; T1, 2, 65 sec.	All toes 12 sec.	At autopsy occlusion right iliac artery by thrombus. Lumen right femoral one-third normal size.
73	M	Erythromelalgia	Burning pain, both feet	Fair	Fair	All toes 10 sec.	All toes 10 sec.	
76	M	Intermittent claudication	Severe claudication with sudden onset, left leg.	Good	0—below knee	All toes 10 sec.	Ankle, 40 sec.; sole 50 sec.; T1, 240 sec.; T2, 34, 270 sec.; T6, 100 sec.	
68	M	Intermittent claudication	Cold feet with mild claudication leg, left			All toes 12 sec.	All toes 15 sec.	
75	M	Intermittent claudication	Claudication calf, right	Decreased below knee 0—foot	Decreased below knee	All toes 15 sec.	All toes 7 sec.	
63	F	Diabetes	Cold feet, pain right foot. Ulcer over right external malleolus.	Good	Good	All toes 30 sec.	All toes 25 sec.	
60	F	Diabetes	Nocturnal leg cramps	Good	Decreased foot and ankle	All toes 5 sec.	T1, 30 sec.; T2, 3, 4, 5, 7 sec.	
63	M	Intermittent claudication	Bilateral claudication worse on left	Decreased below knee	0—below knee	All toes 10 sec.	All toes 22 sec.	
52	F	Diabetes and hypertension		Fair	Fair	All toes 25 sec.	All toes 12 sec.	
64	F	Diabetes		Decreased below knee		All toes 15 sec.		Left leg previously amputated.
70	M	Senility	Pain foot, left. Gangrene toe, first left.	Decreased right foot	0	Not done	T2, 3, 12 sec.; T4, 5 7 sec.	On right poor filling of vessels of T1, 2, 3, in arteriogram.
67	M	Senility	Pain both feet. Gangrene T3, left, and T2, right.	0—foot	0—foot	T1, 3, 40 sec.; T2, 4, 5, 20 sec.	T3, 4, 5, 10 sec.; T1, 2, 30 sec.	
54	M	Diabetes	Pain foot, right. Ulcer T5, right.	Good	Good	T1, 2, 3, 4, 6 sec.; T5, 18 sec.	All toes 6 sec.	
58	M	Intermittent claudication	Bilateral claudication	Decreased throughout	Decreased throughout	All toes 10 sec.	Dorsum of foot 5 sec.; toes 10 sec.	
60	M	Diabetes	Coldness of foot		Decreased leg, 0—foot		All toes 20 sec.; dorsum of foot 30 sec.	Right leg previously removed for gangrene. After induced vasodilatation, temperature of toes equal forehead.
76	F	Diabetes	Coldness and numbness of feet	Decreased throughout	Decreased throughout	T1, 4 sec.; T2, 6 sec.; T3, 10 sec.; T4, 5, 15 to 20 sec.	All toes 12 sec.	
69	M	Diabetes	Pain foot, left. Gangrene T3, left.	Decreased throughout 0—foot	0—below knee	Toes 12 sec.; heel 10 sec.	T1, 2, 4, 5, 12 sec.; heel 7 sec.	
73	F	Senility	Cold feet	0—foot	0—foot	All toes 15 sec.	All toes 15 sec.	
73	M	Diabetes	Pain foot, left. Ulcer on dorsum of foot	Decreased foot	0—foot	All toes 15 sec.	Ball of foot 13 sec.; all toes 25 sec.	
70	M	Diabetes varicosities	Pain on ball of foot, right, when walking. Bilateral varicosities without edema.	Decreased ankle 0—foot	Decreased ankle 0—foot	Pads of toes 5 sec.; dorsum toes 8 sec.	T1, 3, 4, 5, 6 sec.; T2 8 sec.	

gard to the information obtained by other methods of study, particularly oscillometry, information of inestimable value may be obtained when the question involved is that of the proper level for amputation for embolectomy. On the basis of arteriographic evidence, we have many times accomplished successful amputation below the level that would be deemed advisable on the basis of clinical observations only. This experience has been repeated so frequently that we routinely make an arteriographic study before amputation is done. In general the information obtained from the plates is in accord with that afforded by the oscillometer; but occasionally discrepancies are encountered, such as a low oscillometric index in the face of adequate filling of the vessels by the contrast medium. In such instances it is generally safe to amputate at the level suggested by the arteriogram.

We have used arteriography, but rarely in instances where surgical intervention is not necessary for the reason that, in the present inadequate state of our knowledge regarding the ultimate fate of thorium dioxide in the body, it would seem inadvisable to unnecessarily expose a patient to the possible hazard of radium poisoning in later years. This possibility should particularly be considered in younger individuals with good life expectancy. We have provisionally, until more is known regarding the innocuousness of this compound, avoided its use in these circumstances.

In summary:

Arteriographic study of an extremity is of primary usefulness in determining the level for amputation and, if properly interpreted, may be instrumental in saving a portion of an extremity which would ordinarily be sacrificed on the basis of clinical observations. It is not always a satisfactory means for adequately judging collateral circulation, or for differentiating between spasm and organic occlusion. Information obtained by arteriography should be correlated with that obtained by other methods, to avoid erroneous conclusions due to errors in technique. It probably should not be used in younger individuals with good life expectancy until more is known of its ultimate fate in the body.

FLUSHING TIME

It is well known that when the circulation to an extremity is stopped, tissue metabolites are formed which widely dilate the arterioles, so that upon release of the circulation the return of blood to the skin is signaled by a bright flush. Pickering⁴ has utilized this principle for determining the patency of the arterial tree. His technique, as applied to the legs, demands the application of a blood-pressure cuff above the knee. We have introduced a modification which obviates the use of the cuff, believing that it is undesirable to compress the arteries of a diseased extremity more than is essential. After some experimentation, a technique has been perfected which is easily applicable in the office with a minimum of disturbance to the patient, as follows: The patient's feet and ankles are immersed in a bucket of water at 45

degrees centigrade for ten minutes. This usually induces pinkness of the toes even in a badly diseased extremity. Upon removal from the water the feet are immediately wrapped in heavy towels to maintain warmth, and the patient assumes a horizontal position on an examining table. After uncovering the foot, the femoral artery of the leg to be tested is compressed by the fingers at the brim of the pelvis. This is usually easy to do, although some difficulty may be encountered in obese individuals. An assistant then elevates the leg above the horizontal to about 40 degrees, where it is held until the foot becomes blanched. At this moment it is lowered to the table and the other foot is uncovered. Pressure upon the femoral artery is now released, and the time taken for the toes to flush to a color matching those of the other foot is measured by a stop watch. In a normal extremity pinkness appears evenly in all of the toes almost instantaneously, and within 4 to 6 seconds their color matches that of the other foot. The age of the individual does not alter this response. In arteriosclerosis extensive enough to cause either symptoms or signs of circulatory origin, the flushing time in our experience has always shown a delay, its distribution depending upon the location of the vascular lesion. Thus, if the disturbance affects the major trunks above the ankle, the delay in flush may be manifest in all the toes. If the vascular disease is localized to one of the smaller foot vessels, a pronounced delay may occur only in the territory fed by the diseased vessel. With occlusion of the dorsalis pedis artery, we have seen the appearance of flush over the dorsum of the foot delayed by twenty seconds or more, while the flush to the pads of the toes was completed in half that length of time. Conversely, with occlusion of the posterior tibial artery, the delay affects primarily the ventral surface of the foot. In early Buerger's disease with patent major trunks, this test has proved of particular value in disclosing the presence of a process localized in the smaller vessels of the toes. Delay in flush limited to the affected digits may be strikingly obvious. Tables 1, 2, 3 show the results obtained by this procedure as correlated with the clinical findings, oscillometric readings, etc., in normal individuals and patients with arteriosclerosis and thrombo-angiitis obliterans. We strongly recommend this procedure for routine use in the examination of such patients. It is of particular aid in making an early diagnosis, and, in combination with the oscillometer, gives an excellent idea of the extent and location of the vascular lesion.

PRODUCTION OF CLAUDICATION PAIN WITH THE CIRCULATION FREE AND OCCLUDED

The pain of intermittent claudication is confused with that due to arch strain, rheumatism, neuritis, etc., with surprising frequency, particularly if these disturbances are present in a patient having vascular disease. It is of value to reproduce claudication pain in the following manner: The patient lies on a bed, with the feet elevated by two pillows, and, in time to a metronome, the feet are flexed and extended once per second.

Many normal individuals, under these circumstances, will develop pain of the anterior tibial group of muscles in about one minute, but they are able to continue the exercise for several minutes before being stopped by pain and/or fatigue. The individual with claudication will experience an earlier onset of the pain and it will develop so rapidly that he is forced to stop the exercise within a comparatively short length of time. It should be emphasized that the pain will appear first in the anterior tibial group of muscles rather than in the calf, where it is usually felt. But the patient will describe it as being identical in character, except as to location, with that from which he suffers. If, now, his circulation be occluded by a cuff, the state of intolerable pain will be reached more quickly, and the difference between his exercise tolerance under these two sets of circumstances is a rough indication of the degree of circulatory insufficiency. Furthermore, upon release of the cuff, his pain will subside slowly over a period of forty seconds or more; whereas the pain in the leg of a normal individual fades within ten to fifteen seconds. The accompanying example (Table 4) illustrates this. Not only is the diagnosis of claudication thus confirmed, but the test may be frequently repeated in a given case to measure the efficacy of therapeutic endeavor.

TESTS TO SHOW THE MAXIMUM POSSIBLE
INCREASE BLOOD FLOW

Skin Temperature.—Of all methods for this purpose, determination of skin temperature is most commonly employed. Temperature of the skin will depend, on the one hand, upon the amount and temperature of the blood brought to it and the speed with which that blood circulates and, on the other hand, upon the loss of heat from the skin by radiation, conduction, and convection. Since so many factors are involved, it is necessary to make the determinations under carefully controlled conditions, particularly as regards the environmental temperature. Even so, the interpretation of skin temperature readings in terms of circulatory changes is primarily an inferential one. In this regard it is well to remember that a rise in skin temperature of one degree in initially cool skin has not the same significance as a similar rise in skin initially warm, for the reason that the closer the temperature of the skin approaches that of the blood the greater must the blood flow through it be increased to cause an additional rise.

Our studies have been conducted in a room, the temperature of which was maintained within one degree of 18.4 degrees centigrade and the humidity to within 10 per cent of fifty. If the limbs of normal individuals, or those of patients with vascular disease be exposed to such an environment for one hour, the temperature of the toes will approximate that of the room. The fingers usually remain several degrees above this level. It is generally stated that a diseased limb will have a lower skin temperature than a normal one. Under the above conditions, we have seldom found this to be so. Commonly, the temperature of the skin of the diseased limb, even down to an actual

TABLE 3.—Flushing Time—Thrombo-angiitis Obliterans

Age	Sex	Diagnosis	Symptoms	Oscillometric Readings		Flushing Time		Additional
				Right	Left	Right	Left	
45	M	Thrombo-angiitis obliterans	Bilateral intermittent claudication. Some rest pain in feet. Ulcer on T4 and 5, left.	Decreased below knee 0 - foot	Decreased below knee 0 - foot	T1, 30 sec.; T2, 40 sec.; T3, 4, 5, 17 sec.; and the dorsum of foot 25	T1, 2, 3, 20 sec.; T4, 80 sec.; T5, 9 sec.; and dorsum of foot 9	Arteriogram of right leg shows no filling of normalis pedis or digital vessels. After induced vasodilatation, right toes 10.0 degrees below forehead temperature; left 2.0 degrees.
44	M	Thrombo-angiitis obliterans	Intermittent claudication right leg. Rest pain in Gangrene T1, right	Decreased below knee 0 - ankle and foot	Good	T2, 3, 180 sec.; T4, 120 sec.; T5, 60 sec.	All toes 5 sec.	Arteriogram shows block of both tibial vessels, checked by dissected specimen. After induced vasodilatation, temperature of right toes 8.0 degrees below forehead.
31	M	Thrombo-angiitis obliterans	No symptoms. Healed ulcer T1, right	Decreased ankle and foot	Decreased foot	T1, 75 sec.; T2, 3, 130 sec.; T4, 25 sec.; T5, 20 sec.	T1, 45 sec.; T2, 3, 60 sec.; T4, 5, 25 sec.	After induced vasodilatation, toes of right foot 7.0 degrees below forehead temperature; left, 6.0 degrees.
38	M	Thrombo-angiitis obliterans	Pain T2, left, of short duration, with swelling and redness	Slight decrease below knee	Slight decrease below knee	All toes 6 sec.	T1, 2, 5, 3 sec.; T3, 4, 25 sec.	After induced vasodilatation, toes of both feet 2.0 degrees below forehead temperature.
38	M	Thrombo-angiitis obliterans	Pain in arch of right foot on walking. Discoloration of ankle and foot	Decreased ankle 0 - foot	Good	All toes 20 sec.	All toes 4 sec.	Early Buerger's with slight symptoms.

TABLE 4.—*Production of Claudication Pain in Normal Persons and in Patients With Occlusive Arterial Disease*

	Circulation Free			Circulation Occluded		
	First Pain (Sec.)	Intolerable Pain (Sec.)	Disappearance (Sec.)	First Pain (Sec.)	Intolerable Pain (Sec.)	Disappearance (Sec.)
Normal	60 - 70	180 - 300	10 - 15	40 - 50	60 - 85	5 - 8
Arterial disease....	30 - 50	85 - 100	20 - 55	40 - 50	60 - 85	20 - 60

area of gangrene, may be higher than that of the companion limb. Dissection of such an extremity after amputation has shown poorly nourished and ischemic muscles. This temperature phenomenon may be due to a shunt of blood by collateral circulation through the skin and subcutaneous tissues. It is our conclusion that the knowledge to be gained from a comparison of the temperatures taken from symmetrical points on a diseased and on a healthy limb, exposed to an environmental temperature which induces vasoconstriction, is of little diagnostic value and may, in fact, be actually misleading.

The literature is replete with references dealing with the magnitude of rise in skin temperature of the extremities following induced vasodilatation. In a sense, such emphasis is misplaced, for the reason that this rise will be conditioned by the lowness of the initial reading which, in turn, will depend in great measure upon the environmental temperature. It is not the magnitude of the rise that is important, but rather how closely the high-

est temperature attained approaches that of the trunk. If, in given areas on the trunk and on the toe, the minute skin vessels are equal in number and maximum dilatation is induced, their temperatures will be equal, provided, of course, that the major arterial pathways supplying these areas are not narrowed. Maddock and Collier⁵ have clearly demonstrated that when the vessels of the extremities are widely dilated, the skin temperature approaches that of the trunk. In our studies we have adopted a point of reference at the root of the nose, and express the temperature of the toes or fingers in terms of degrees below that of this point. With induced vasodilatation the temperature of the toes or fingers of a normal person will rise to within one or two degrees, or even exceed, that of the forehead. The number of degrees by which the temperature of an extremity fails to approach forehead level measures the severity of the structural arterial disease present.

Many of the procedures recommended for producing maximum vasodilatation, such as intrave-

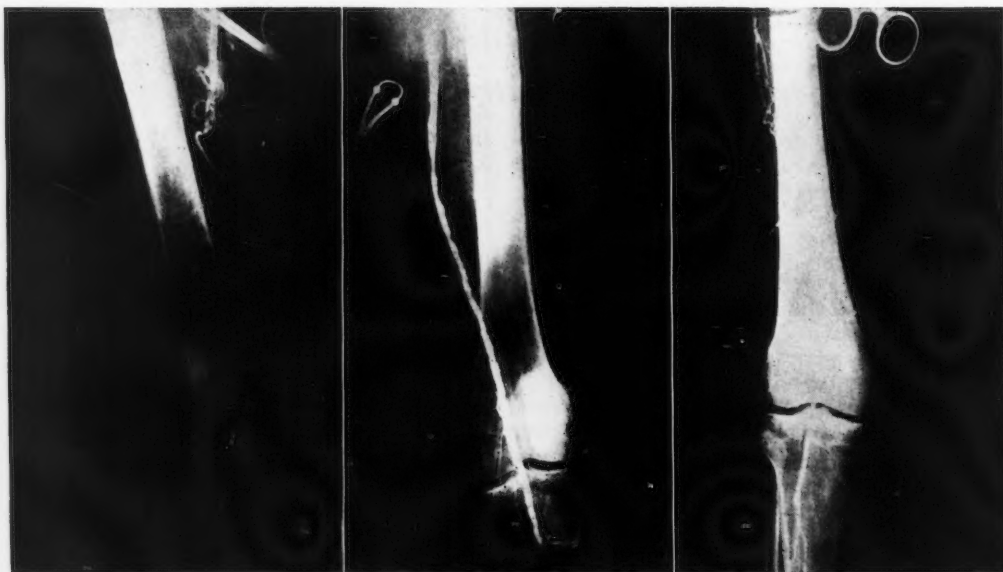


Fig. 1

Fig. 2

Fig. 3

Fig. 1.—Mrs. R. A white woman of 73 with pronounced arteriosclerosis apparently suffered an acute arterial occlusion two weeks previously. On admission the foot was gangrenous. An arteriogram indicated the level of the occlusion to be in the middle of the thigh. This was confirmed at operation, a portion of the thrombus being removed from this site.

Fig. 2.—Mr. W. Gangrene of the foot in a man of 65 with diabetes. The outline of the femoral artery is irregular, with striking diminution in caliber due to arteriosclerotic thickening. The popliteal artery is almost occluded at the point of bifurcation. Amputation through the knee joint was followed by prompt healing.

Fig. 3.—Mr. P. A white man of 57 with marked arteriosclerosis was admitted because of gangrene of the great toe. Arteriography reveals obliteration of the femoral artery high in the thigh. A well-developed collateral circulation fills the popliteal artery, which in turn was almost occluded at its bifurcation. On this basis amputation was performed below the knee, with prompt healing of the stump.

nous typhoid vaccine, spinal or general anesthesia, hyperthermia, etc., are not only impractical because they require hospitalization, but are attended by a certain element of risk when applied to patients in the older age groups, or to those suffering from a complication such as diabetes. We have, therefore, investigated the merits of the procedures which are less vigorous and are applicable to ambulatory patients. The method of Maddock and Coller is quite satisfactory, but time-consuming. The immersion method of Landis and Gibbon⁶ sometimes does not produce maximum dilatation. We have adopted the following simple procedure: The patient is wrapped in a sheet, and over him is placed a cradle which is heated by carbon filament lamps and covered by woolen blankets. The head and also the extremities to be studied project from the cradle. When the lights are turned on, the rise in finger temperatures is rapid and complete within a few minutes, as illustrated by Chart 1. The rise in the temperature of the toes is slow under these circumstances, and maximum dilatation may not occur until an hour has elapsed, at which time the oral tempera-

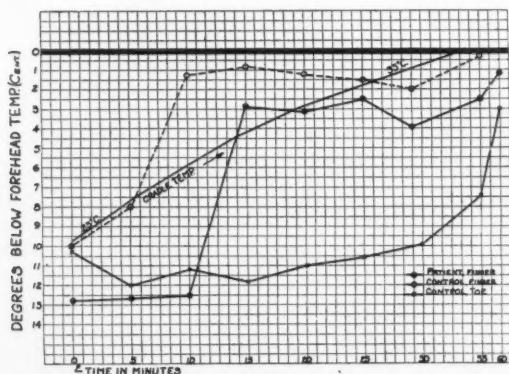


Chart 1.—Vasodilatation of the fingers and toes, produced by application of heat to the trunk.

ture may have risen by a degree or more. It is, therefore, desirable to hasten the appearance of dilatation in the vessels of the foot. For this purpose anesthetization of the posterior tibial nerve is satisfactory. The rise in skin temperature, due to anesthetization only, is followed until a plateau is reached which usually occurs in about thirty minutes. If the final temperature of the toes approaches that of the forehead, no further procedure is necessary. If it does not reach this level, the patient is placed under the cradle and in fifteen to twenty minutes after the lights are turned on, maximum dilatation is reached. Response of a normal person to this combined procedure is shown in Chart 2. That the results compare favorably with those obtained by the use of intravenous vaccine and spinal anesthesia is illustrated by Chart 3.

As to the indications for temperature studies of this kind, we have not found that in patients with arteriosclerosis they give much information of value additional to that obtained from the more simple methods of examination. In patients with

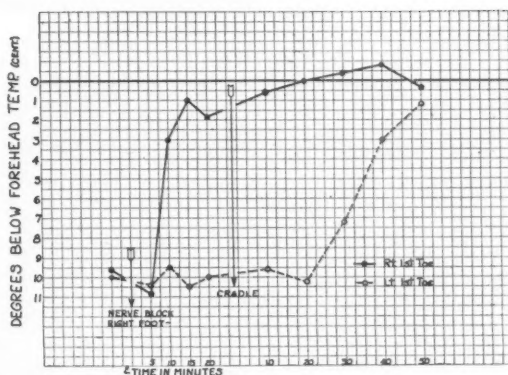


Chart 2.—Vasodilatation resulting from posterior tibial nerve block and heat applied to the trunk, as compared with heat only.

early thrombo-angiitis affecting only the smaller vessels, such studies are often of invaluable aid in making the diagnosis. In the more obscure vascular disorders, such as Raynaud's disease and acrocyanosis, the study of skin temperature behavior has been of great worth in elucidating the exact nature of the vascular fault. As is well known, however, its primary field of usefulness lies in the selection of those patients with Buerger's disease who are suitable for operation upon the nervous system.

DIGITAL PULSE VOLUME BEFORE AND AFTER VASODILATATION

This method, devised by Scupham and Johnson,⁷ consists in the application of the plethysmographic principle to measure the increase in volume of a digit with each pulse beat. The digit is inserted through a tight rubber diaphragm into a glass cylinder which is connected by small bore rubber tubing to the shaft of a 1.0 cubic centimeter pipette, into which a bubble of alcohol has been drawn. The bubble, due to its small inertia, oscillates almost synchronously with each pulse beat, and the magnitude of the oscillations may be either read directly in millimeters by placing the shaft of the pipette against a ruler or, better, by its photographic representation upon a moving film. An

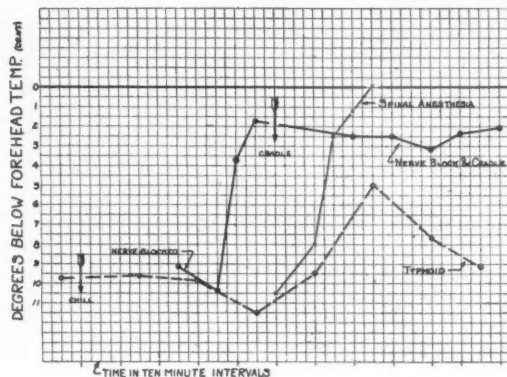


Chart 3.—Comparative effects of various procedures for inducing vasodilatation of the extremities.

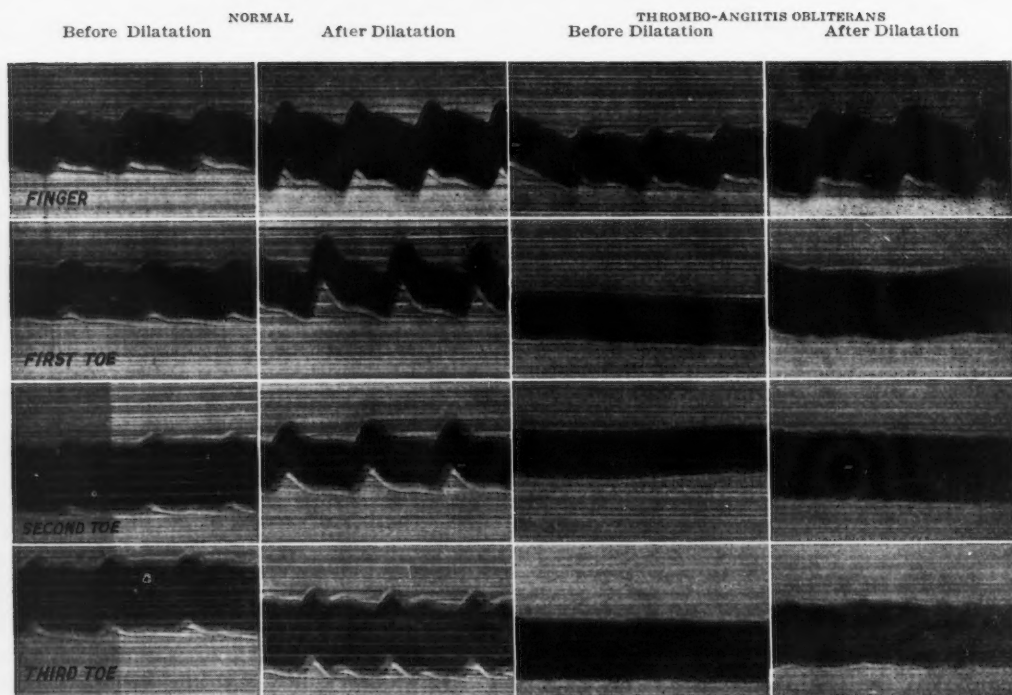


Chart 4.—Digital pulse tracings before and after dilatation, comparing normal response with that of a patient with thrombo-angiitis obliterans.

electrocardiographic camera is easily adaptable for this purpose. With the length and bore of tubing, camera distance, etc., remaining constant, the tracings obtained from patient to patient, and under varying conditions, may be compared and interpreted in terms of altered blood flow. We have evolved a numerical method of expressing such interpretations termed "Volume Flow Ratio." The distance between and the height of succeeding pulse

beats are measured in millimeters directly from the tracing. The first value is then divided into the second, and if either the pulse rate increases (distance between waves shortened) or the height of the wave increases (increase in volume flow per beat), the ratio will increase.

The finger plethysmograph finds its primary usefulness in observing the behavior of the digital arteries. If an arterial block exists above the level of these vessels, obviously the volume flow ratios will be low, but the presence of such a block is more accurately determined by other procedures. A disease process limited to the arteries of the digits is easily detected, particularly if the pulse volume is determined directly after immersion of the extremity in warm water for fifteen to twenty minutes. By taking tracings from each digit after maximum vasodilatation is thus induced, the affected digits may be recognized. In early thrombo-angiitis obliterans the diagnosis may be greatly facilitated by this means. An example of the tracing obtained before and after vasodilatation in such a case, together with a normal response, is illustrated in Chart 4.

The pulse tracings obtained from patients with functional vascular disturbances, such as Raynaud's disease and acrocyanosis, have been most instructive. The behavior of the digital arteries, under varying environmental temperatures produced by immersing the hands in water maintained at the temperature desired, may be accurately evaluated. In Chart 5 are represented the ratios for volume flow through the fingers of normal and

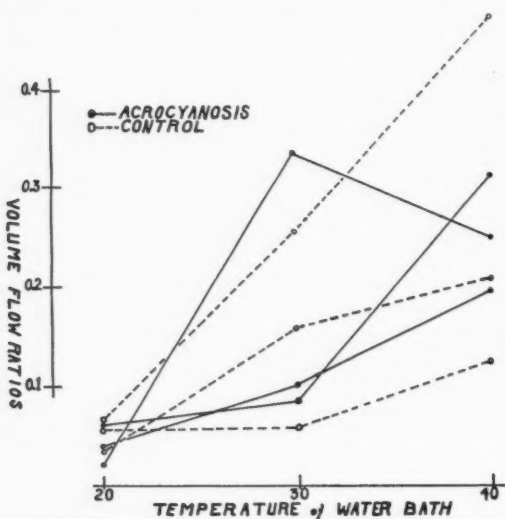
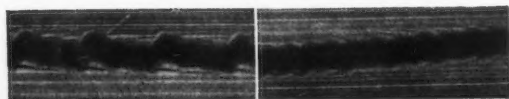


Chart 5.—Response of the digital arteries in normal persons and in patients with acrocyanosis to increasing environmental temperatures.

VALSALVA EXPERIMENT



Normal Breathing

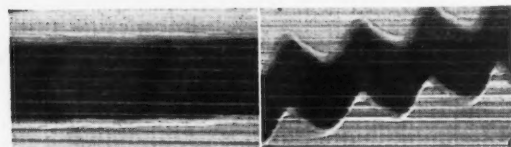
Forced Expiration Against Closed Glottis

COARCTATION OF AORTA



Finger Before Dilatation

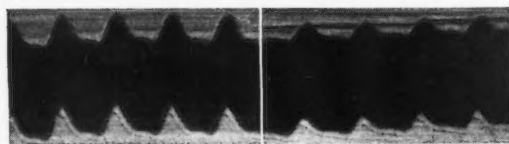
Finger After Dilatation



Toe Before Dilatation

Toe After Dilatation

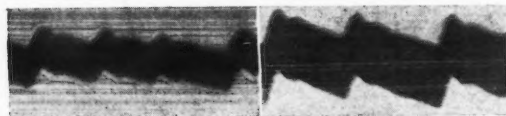
ARTERIOVENOUS ANEURYSM



Aneurysm Open

Aneurysm Closed

AURICULAR FIBRILLATION



Before Digitalis

After Digitalis

HEART BLOCK

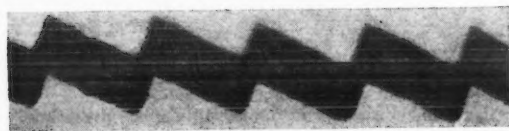


Chart 6.—Types of pulse tracings obtained in various conditions in which the cardiac output may be altered.

acrocyanotic hands. It will be noted that the digital arteries in this condition, not unduly in spasm when the hand is cold, behave quite normally in response to increase in environmental temperature, complete dilatation being present at 40 degrees centigrade. As Lewis⁸ has shown, their behavior in Raynaud's disease is distinctly different. Low temperatures induce intense spasm which is overcome with difficulty at higher environmental

temperatures. By this method, then, a sharp difference between the underlying vascular fault in these conditions is demonstrated.

It should be added that if the digital arteries are maintained in a constant state of maximum dilatation, changing height of the wave suggests alteration of cardiac output. In Chart 6, the fall-off in finger pulse during a Valsalva experiment is demonstrated, during which it is well known that cardiac output is materially decreased. In Chart 6 are also given tracings obtained from the fingers and toes of a patient with coarctation of the aorta. While caution in interpretation is necessary here because of the vascular abnormality, the tremendous flow through the fingers may in part be due to increased cardiac output, which may be present in this condition.⁹ The effect upon blood flow through the fingers of a femoral arteriovenous aneurysm is shown in the chart. This patient had received atropin to obviate the changes in pulse rate consequent upon manipulation of the aneurysm. The decrease in height of the pulse wave when the aneurysm is closed by pressure upon the femoral artery is evident and strongly suggests that the cardiac output is lessened. This interpretation is in strict conformity with the experimental results reported by Harrison, Dock, and Holman.¹⁰ We have also observed a striking smallness of the pulse wave in surgical shock, and in auricular fibrillation with rapid ventricular rate. In complete heart-block the pulse wave is very great. Typical tracings are reproduced on the chart.

In summary, it may be said that this method gives little information not obtainable by the procedures previously discussed in the usual case of arteriosclerosis or Buerger's disease. In purely functional disorders, information is obtained which is of value both in making a correct differential diagnosis and in throwing light upon the true nature of the vascular fault. Inferences regarding cardiac output should, of course, be made with caution, until such time as actual determinations can be correlated with the appearance of the pulse wave under varying circumstances.

SUMMARY

Experiences with the use of various methods proposed for the study of vascular disease as encountered in a representative group of patients are reviewed. The methods studied were: 1. Oscillometry; 2. Arteriography; 3. "Flushing time"; 4. Production of claudication pain with the circulation free and occluded; 5. Comparison of skin temperature readings at symmetrical points before and after induced vasodilatation; and 6. Measurements of the digital pulse volume before and after dilatation. The technique, indications, and comparative values of these various procedures are discussed and evaluated.

Cottage Hospital.

REFERENCES

1. Friedlander, A.: Recognition of Types of Arteriosclerosis by Oscillometry, *J. A. M. A.*, 104:279 (Jan. 26), 1935.

2. Veal, J. R., and McFetridge, E. M.: Surgery of Gangrene of Extremities, *Surg. Gyn., and Obs.*, 60:840-847 (April), 1935.
3. Allen, E. V., and Camp, J. D.: Arteriography, *J. A. M. A.*, 104:618 (Feb. 23), 1935.
4. Pickering, G. W.: On the Clinical Recognition of Structural Disease of the Peripheral Blood Vessels, *Brit. M. J.*, 2:1106 (Dec. 16), 1933.
5. Maddock, W. G., and Collier, F. A.: The Role of the Extremities in the Dissipation of Heat, *Am. J. Physiol.*, 106:589 (Dec.), 1933.
6. Landis, E. M., and Gibbon, J. H.: A Simple Method of Producing Vasodilatation in the Lower Extremities, *Arch. Int. Med.*, 52:785 (Nov.), 1933.
7. Scupham, G. W., and Johnson, C. A.: Peripheral Vascular Phenomena: The Peripheral Pulse Volume in Occlusive Arterial Disease, *Arch. Int. Med.*, 52:877 (Dec.), 1933.
8. Lewis, T.: Experiments Relating to the Peripheral Mechanism Involved in Spasmodic Arrest of the Circulation in the Fingers—A Variety of Raynaud's Disease, *Heart*, 15:1, 1929-1931.
9. Grollman, A., and Ferrigan, J. P.: Cardiac Output: Its Related Function in a Case of Coarctation of the Aorta, *Arch. Int. Med.*, 53:35 (Jan.), 1934.
10. Harrison, T. R., Dock, W., and Holman, E.: Experimental Studies in Arteriovenous Fistulae: Cardiac Output, *Heart*, 11:337, 1924.

DISCUSSION

WILLIAM J. KERR, M.D. (University of California Medical School, San Francisco).—The authors have given a clear exposition of practical methods for the study of peripheral vascular diseases. These methods are simple and available for physicians who wish to secure reliable information as to the integrity of the arterial supply to the extremities. It is intended that they will supplement the usual observations made in physical examinations which, in most cases, direct our attention to the extremities. A few comments may be made about each procedure described. *Oscillometric readings* on the extremity are helpful in locating the point of occlusion of major vessels in contemplation for amputation. They are of less value in irregularly placed areas of reduced circulation on the foot or toe. In those patients whose arteries are inflamed or readily subject to spasm of the vessels, false readings may be obtained. The *arteriographic method* may be of very great value in arterial occlusion or in arteriovenous aneurysm. Thorium dioxide is but one of the opaque mediums available for this purpose, the halogen compounds being of some value. As the authors point out, small amounts of the radioactive thorium salt may be used safely in elderly subjects who require amputation. The expectancy of life is probably no greater than a few years, and it is not likely that neoplastic changes in the liver will result from the continuous radiation within a period of four or five years; at least no reports of such complications have appeared. However, for those with an expectation of many years of life, other contrast mediums should be used. The *flushing time* in the extremity shows the relative speed of return of bright color to the skin. It does not necessarily indicate the patency of deeper vessels which can be shown by other methods. The method used by the authors is ingenious. In my experience, patients with serious impairment of circulation in the extremities may complain of severe pain in water at 45 degrees centigrade for five minutes, as they do when the vessels are occluded by a blood-pressure cuff. If the circulation to the extremity is marked, the simple procedure of elevation of the limb, the application of pressure with a cuff above the knee or elbow, followed by a lowering of the limb to the horizontal and release of the pressure, will give almost equally good results. There may be some danger of infecting the extremity when there is an open lesion if the hot bath is used. This, however, is not very likely when we consider the degree of exposure to infection these

patients have before they come for treatment. The test for *claudication pain* is practical and helpful. The test for *maximum increase in blood flow* by the use of a cradle and injection of peripheral nerves is of definite value, and avoids the risks involved in other general or local methods of securing maximum dilatation of vessels. Tests on pulse volume with any constricting membranes or tubes are subject to error in recording and interpretation, especially in areas where the vascular tree is diseased.

It should be kept in mind that none of the methods described establish the etiologic diagnosis in a given case. They are only tests of patency, continuity, and flexibility of the arteries in conditions where "poor circulation" is manifested. The tests show anatomic and physiologic changes. The etiologic basis for the disorders must be discovered by other means—history, general examination, and clinical course. The authors are to be congratulated upon their clear discussion of a very important subject in clinical medicine.

✱

WILLIAM DOCK, M.D. (Stanford University Medical School, San Francisco).—It is extremely gratifying to examine the results obtained by well-planned and neatly performed experiments or clinical studies such as these. The observations described under "Flushing Time" and "Production of Claudication" are of especial importance because they can be repeated by any physician desirous of studying the degree of disturbance in function and the areas least well supplied with blood; but the authors' evaluation of such simple tests, based on more difficult or elaborate methods, is what makes them really useful.

On one minor point I find myself in disagreement, and this concerns not the clinical value or interpretation of the findings, but the physiologic basis. The digital pulse records I believe to be simple pulse records, not records of volume flow into and out of the digits or indicative of cardiac output. The authors support their contention for a volume flow partly by noting a decreased finger-pulse on closing a femoral arteriovenous fistula, and interpret this as conforming with the observation of decreased cardiac output on closing experimental fistulae in the dog. But the critical experiment, performed by Lewis and Drury with faultless technique, showed that when such a femoral fistula is closed the blood flow in the arm is greatly augmented, and I feel sure this is also true in the fingers. The pulse pressure and, to a lesser degree, the cardiac output falls, but the flow in the arm rises. Probably even when full vasodilatation has been produced before closing the fistula, the rise in diastolic pressure more than offsets the fall in pulse pressure; mean pressure in the brachial arteries rises greatly and undoubtedly forces more blood through the capillary bed of the fingers. To measure blood flow one must abruptly cut off venous outflow with the finger or arm in the plethysmograph; but the pulse tracings from the digits are of great value in studying the nature of vascular disease of the extremity.

✱

WILLIAM H. LEAKE, M.D. (1930 Wilshire Boulevard, Los Angeles).—These carefully controlled studies should be especially valuable to the clinician interested in peripheral vascular disease. The methods described are helpful in determining the degree of structural alterations and in evaluating the state of the collateral circulation. The frequency with which embolism and thrombosis of the vessels of the extremities occur in cardiovascular disease is now well recognized. Early diagnosis and treatment are necessary. If surgical removal of an embolus is planned, it is imperative to determine its location as accurately as possible. This is not always easy even with the aid of special tests, but nevertheless every accepted diagnostic procedure should be utilized in order to clarify the situation. Obviously, some of the methods of study described in this paper are not suitable for emergency use, but the simpler ones may be easily carried out at the bedside on short notice and with no complicated apparatus.

MANAGEMENT OF POSTOPERATIVE PAIN

By SUREN H. BABINGTON, M.D.
Berkeley

DISCUSSION by S. Everingham, M.D., Oakland; A. A. Alexander, M.D., Oakland; Fletcher B. Taylor, M.D., Oakland.

AS a preliminary remark, I would like to state that this paper is based upon the study of eleven original articles, coupled with our own personal observations in the practice of surgery.

What is the nature of postoperative pain following abdominal surgery?

Certainly it is not the pain felt in the incision, for that, in itself, is of minor importance.

It is the gas pain in the intestines due to distention that we are referring to, and it is most distressing to the patient and, at times, alarming even to the surgeon.

How shall we manage it? Of course, it would be better to prevent its development, rather than to seek its alleviation later.

The real problem, then, is to find the causes of postoperative pain.

CAUSES OF POSTOPERATIVE PAIN

When we review the literature on the subject in the experimental field on animals, we find reports quite contradictory. The same is true of data presented by surgeons, which are based upon clinical observations upon large groups of patients in our medical centers.

Some⁸ surgeons condemn the use of nitrous oxid in preference to spinal anesthesia, while others,^{2,9} claim that gas pains are as common after spinal anesthesia as they are after inhalation anesthesia. However, Cutting² believes that inhalation anesthesia is the best in most operative procedures.

Some surgeons advise a long preoperative stay in the hospital, while others⁹ consider this not only unnecessary (as far as the prevention of postoperative pain is concerned), but they attempt to show that pains increase in direct proportion to the length of preoperative hospitalization.

Some have condemned the preoperative use of narcotics because of their constipating effects, it being believed they brought on constipation by causing atony of the musculature of the small intestines.

Plant and Miller¹¹ in 1926, and Grueber⁴ in 1930, after experimenting on the intestines of unanesthetized dogs, showed that morphin and its derivatives increase, on the contrary, the tone of the small bowel, and that constipation is due to increased inhibition of the defecating reflex and the increased tone of the sphincters.

Some⁵ have suggested substitution, for the liquid diet ordinarily given to the patients for the first few days postoperatively, of a solid diet. The reason for this is the belief that the postoperative gas is caused by excessive putrefaction, as the bacteria, normally present, multiply more rapidly upon a semistarvation diet.

Others,^{3,9} on the contrary, have suggested not only complete starvation, but even abstinence from

the fluids usually given by mouth for the first few days, these fluids to be given intravenously instead. They believe that complete rest of the gastrointestinal canal helps the intestinal tone to return more quickly.

Paine and others¹⁰ even go so far as to suggest nasal catheter with stomach syphoning immediately following abdominal surgery, while Mahoney insinuates that gastric lavage has done a great deal of harm on some occasions.

Some surgeons¹ recommend proctolysis as a preventive measure against gas and nausea, while Cutting² believes this procedure is open to certain objections, and Mahoney⁵ openly condemns it.

For a while, in this country, there was a trend toward a rapid and spectacular surgery. Ottenheimer,⁹ in a series of four hundred cases, comes to show that there is a lower percentage of gas pains in the operations lasting up to two hours or more than there is in those operations lasting one to one and one-half hours.

So far, therefore, it seems that surgeons are definitely divided into two opposing camps on this question.

However, it is unanimously agreed that the improved mental attitude of the patient, induced by the judicious use of sedatives, the reassuring influence of the surgeon, avoidance of catharsis and all vigorous enemata, and gentleness in the handling of organs during operation, are very important measures in the prevention of postoperative pain.

TREATMENT

Now as to the active treatment:

After we have tried one or another of these preventive measures, according to our preference, what can we do to stop any pains which may, after all, develop?

The so-called gas enema is widely used, but Cutting² and Alton Ochsner⁷ object to it as a factor in establishing a vicious circle, by irritating the bowels. They believe that a rectal tube can accomplish exactly the same beneficial results without the harm incident to the enema.

The use of drugs, such as eserine or physostigmine, pituitrin, pitocin, choline, acetylcholine, and peristaltin, which are all supposed to promote intestinal movements, have both their advocates and their antagonists. Martzloff,⁶ working in the Johns Hopkins Hospital, reported that the patients receiving prophylactic treatment with eserine had worse postoperative courses than those which did not have any such medication. Cutting, after enumerating evidences in favor of and against all of these mentioned drugs, concludes that their value is almost nil, if not contradictory.

However, most clinicians agree that the relief of mechanical tension, due to tight bandaging, should be relieved, rectal tube and heat in various forms should be used freely, and the patient be permitted to turn in bed.

Recently Gepfer³ of New York City, in a preliminary report, suggested the introduction of a concentrated sterile fraction of bovine amniotic fluid into the peritoneal cavity to promote smoother postoperative convalescence.

When it comes to the use of analgesics, again we have divided opinion about the use of morphin. Paine and others¹⁰ do not find any factors prejudicing the employment of adequate doses of morphin for the control of pain, while Cutting² warns that, although the administration of morphin may be found necessary in intractable cases, one must guard against the repeated use of it, as intestinal obstruction may develop unrecognized under the mask of narcosis.

In concluding this paper we wish to make a brief presentation of a case in order to stimulate discussion about the prevention of postoperative pain and the avoidance of the use of narcotics.

REPORT OF CASE

We shall not, however, burden the reader with a long, though interesting, history of the patient, who was fifty-nine years of age, and had been suffering over a period of seven years from periodic attacks of excruciating pains in the left upper quadrant, accompanied by nausea and vomiting.

The attacks usually came on gradually, at intervals of from one to two months, each attack lasting about two weeks. Her weight had dropped from 158 pounds to 100 pounds when we saw her. Naturally, malignancy had been suspected by physicians who had seen her before she came to us.

After a thorough examination, x-rays, spinal puncture, and laboratory tests had been made, the most important finding, which seemed to account for her trouble, was periodic diverticulitis of the splenic flexure of the colon, as the barium enema brought out the presence of three distinct diverticuli in this region.

After the examinations, we sent her home with a non-residue diet and certain medications, with the request that she return in a few months.

When she finally came again, from her home in Arizona, about two months ago, we felt that she should have her carious teeth out. In addition, we gave her reduced iron, and a small amount of digitalis. At the time of the operation, six weeks later, she had gained eighteen pounds.

In the operating room, in addition to the diverticuli, we found extensive adhesions, both in the splenic and gallbladder regions, and these also had to be attended to.

We avoided giving her narcotics. She made a remarkable recovery, free of nausea and vomiting. This may have been due partly to the use, both pre- and post-operatively, of prostigmin (dimethylcarbamate ester of m-oxyphenyl trimethyl ammonium methylsulphate), . . . a synthetic substance supposedly with a selective action on the intestinal and vesical musculature through their parasympathetic innervation, and hypodermoclysis during and after the operation.

2301 Ward Street.

REFERENCES

1. Cunningham, S. P.: The Cause and Prevention of Postoperative Gas Pains, *Anesth. and Analg.*, 7:376 (Nov. and Dec.), 1928.
2. Cutting, Reginald A.: Principles of Preoperative and Postoperative Treatment. Pp. 311-341. Paul B. Hoeber, Inc., New York, 1932.
3. Gepfert, J. Randolph: Intraperitoneal Use of Amniotic Fluid to Promote Smoother Postoperative Convalescence, *Am. J. Surg.*, 32:40 (April), 1936.
4. Gruber, C. M., et al.: Further Studies on the Effect of Morphin Sulphate, Atropin Sulphate, and Hyoscin Hydrobromid on the Intact Intestine in Unanesthetized Dogs, *J. Pharmacol. and Exper. Therap.*, 38:389 (April), 1930.
5. Mahoney, Louis E.: Prevention of Gas Pain, *Am. J. Surg.*, 32:272 (May), 1936.
6. Martzloff, K. H.: The Use of Essin and Strychnin in Postoperative Abdominal Distention, *Bull. Johns Hopkins Hosp.*, 35:370, 1924.

7. Ochsner, Alton, and Gage, I. M.: Adynamic Ileus, *Am. J. Surg.*, 20:378 (May), 1933.

8. Ochsner, A., et al.: The Value of Drugs in the Relief of Ileus, *Arch. Surg.*, 21:924, 1930.

9. Ottenheimer, Edward J.: Postoperative Gas Pains, *New England J. Med.*, 213:608 (Sept. 26), 1935.

10. Paine, John R., et al.: The Postoperative Control of Distention, Nausea, and Vomiting: A Clinical Study with Reference to the Employment of Narcotics, Cathartics, and Nasal Catheter Suction-Siphonage, *J. A. M. A.*, 100:1910-17 (June 17), 1933.

11. Plant, O. H., and Miller, G. H.: Effects of Morphin and Other Opium Alkaloids on the Muscular Activity of the Alimentary Canal, *J. Pharmacol. and Exper. Therap.*, 27:361 (June), 1936.

DISCUSSION

S. EVERINGHAM, M.D. (400 Twenty-Ninth Street, Oakland).—I believe that it is quite difficult to discuss the management of postoperative pain without taking into account the preoperative preparation and the skilled manipulation at the operating table. Under the first may be emphasized the careful study of the whole physiological make-up. It is of paramount importance that the water balance, chlorid, and glucose needs be observed and maintained to provide a buffer for the fluid loss from loss of blood and perspiration during surgery.

It is fundamental for a smooth postoperative course that all tissues have most delicate handling. This includes feather-edge dissection and the absence of any rough treatment with gauze. Likewise gentle retraction, and especially pulling on viscera and mesentery, are to be avoided.

Abdominal distention, we have felt, comes from two sources. First, from the abuse of those procedures mentioned above and ileus, the causes of which have been very well worked out in the surgical laboratory. In the main, paralytic ileus is a defense mechanism in response to certain injuries to the sympathetic nervous system. Treatment of this should be aimed at supportive measures, and in our experience the high-powered glandular extracts have not been given an important position in its treatment.

✱

A. A. ALEXANDER, M.D. (1904 Franklin Street, Oakland).—Possibly the term "gas pains" is an unfortunate one, because it focuses attention upon one of the agencies of distress rather than upon the underlying mechanism. Unhappily the problem of gas pains is not peculiar to surgery. Surgical manipulation adds a definite provocative factor and, in general, the degree of peritoneal insult from exposure and handling measures the severity of distress. Hence, operations against time are more productive of gas pains than more deliberate, careful procedures. For similar reasons vigorous preoperative purgation is liable to be followed by painful distention. Regardless of these mechanical factors, so-called gas pains of greater or less severity are not uncommon. For example, in simple neurosis, in circulatory failure, in nephritis or pneumonia, and the well-known distention that occurs after extension casts applied to the spine. Here we have diverse influences brought to bear—in the one case psychic, another anoxemia, another toxic, another mechanical—all to influence the nerve supply of the gut, and alter or arrest the mechanism of peristalsis. As a result gas accumulates and further contributes to stasis. So, to be effective, treatment must aim at the underlying mechanism. There is a definite protection in gentle manipulation with little exposure, and in the psychic set-up preoperatively and immediately before anesthesia. Active treatment when administered concerns itself with correcting the mechanism of disturbed bowel musculature. Eserin, pituitrin, enemas, the rectal tube—all secure the expulsion of gas; but to be effective they must also restore a proper gradient of peristalsis. In the light of recent work it might be interesting to try nitroglycerin for this purpose.

✱

FLETCHER B. TAYLOR, M.D. (400 Twenty-Ninth Street, Oakland).—The subject of postoperative pain becomes important immediately to anyone about to undergo operation, and to that person's physician. Let the author's comment be emphasized that surgeons agree upon certain

basic conditions which minimize postoperative abdominal pain, namely, (1) a good mental attitude in the patient, (2) avoidance of preoperative cathartics, and (3) gentleness in the handling of tissue at operation. These will continue to be more important than any new means of relief for pain which is unnecessarily present. But no technique can be perfect, and pain is an inherent surgical aftermath, so consider it again, and first evaluate it.

If a patient is a poor subject for surgical work, if he or she is psychically volatile or has a low threshold for sensation, habituate that patient to the din and clangor of hospital life for several days before operation. Also find out what pain means to that individual. Press upon the styloid process or the supra-orbital ridge, and inflate the colon to get the amount of response to those procedures; be thus prepared to know what weight to give postoperative symptoms. Otherwise there may follow a panic serial of codein, morphin, gastric and colonic intubations, all the result of misinterpretation of the severity of pain, each remedy or procedure carrying in its wake a new spreading circle of misery.

Prostigmin was used to control pain in the author's patient. I have had no experience with it, but find that it is available as a 1-2000 solution, of which the dose varies between one and five cubic centimeters hypodermically among those who do use it. It stimulates parasympathetic activity and causes contraction of the digestive tube: peristaltic action (J. A. Aeschlimann and M. Reinert, *Journ. of Pharm. and Exp. Ther.*, 43, 413), smooth muscle contraction, expulsion of flatus, bowel movement (Karl Schlaepfer, *West. Journ. of Surg., Obs., and Gynec.*, 44, 437). It is a physiologic antagonist of epinephrin, atropin, and papaverin. It may cause griping, nausea, and faintness in the elderly (Winkelman and More, *Arch. of Neurology and Psych.*, 37, 237), so that its use and dosage assume interest which will be tempered by the experience of the future.

Neither this nor any other drug can be expected to supplant the metabolic care of the digestive tube upon which life and comfort ultimately depend. It will still be necessary to control gas accumulation by supporting good circulation in the patient. Effective volume of normal blood must be maintained by the use of fluids, chemical metabolites and calories, before and after operation, in order to invite the benefit of drugs and of nature.

NATURAL GAS—ITS PHYSIOLOGIC ACTION*

By D. B. TYLER, Ph.D.

AND

D. DRURY, M.D.
Los Angeles

DISCUSSION by A. G. Foord, M.D., Pasadena; F. W. Siegmund, M.D., Los Angeles; Arthur E. Guedel, M.D., Beverly Hills.

THE work to be reported in this paper was undertaken to determine what action natural gas, as supplied to consumers in Los Angeles, may have on animals and man. As the gas was known to have no marked poisonous action, it was our aim to determine what alterations, however slight, the gas might cause in the physiologic processes, even after prolonged application. The gas used in this investigation is typical of that produced in the Southern California oil fields, and odorized and distributed for domestic use in the Los Angeles area. For our use it was taken from the ordinary gas outlets in the laboratories of the University.

EXPERIMENTS ON ANIMALS

On Rats.—The first tests were carried out on rats. They were kept in a cylindrical iron tank, approximately two feet in diameter and three feet

TABLE 1.—Record of Weight and of Red Blood Cell Counts of Rats, Before and After Exposure to the Gas

	Weight in Grams		Red Blood Cell Count (Millions)	
	Before	After	Before	After
1	110	115	8.5	8.2
2	130	160	7.8	7.0
3	105	105	7.9	7.0
4	180	165	7.6	8.0
5	185	203	7.7	7.9
6	190	220	11.5	10.5

in length, with one end covered with cellophane. Gas and air were continuously supplied to the tank in a proportion to maintain the desired mixture. Gas was taken from the ordinary outlet tap, and air was supplied by a pump. Both were measured with gas meters, and the rates were adjusted to give a gas concentration of 8 per cent. Six rats (three males and three females) were kept in such a mixture for thirty-six days. The tank was opened about ten minutes each day for cleaning and feeding.

The animals ate well and stayed in good condition. Upon removal all rats were clean and healthy. A litter of new-born rats, born during the night, were found alive at the bottom of the tank, having fallen through the floor grating. They were all in apparently healthy condition, but cold, due to lack of mother care. The gestation period for rats is three weeks, so mating must have taken place during exposure.

Table 1 gives the record of weight and of red blood cell counts before and after exposure to the gas. Only one rat lost weight; most of the others showed definite gains, indicating a normal metabolism. There is no definite trend in the red blood cell counts, indicating no anemia-producing action. The rats were killed, and autopsy revealed nothing whatever abnormal.

On Monkeys.—The next experiments were carried out on monkeys. A monkey was kept in the chamber and supplied with a mixture maintained between 25 and 30 per cent gas in air. It remained in excellent condition, eating well, and maintaining its weight for thirty days, in which state it was observed on the evening of the thirtieth day. On the morning of the thirty-first day it was found unconscious and cold, and it died soon after. The cause of this sudden change in the animal's condition had every appearance of being the result of asphyxia, and due to some mechanical disturbance in the gas-air supply system during the night. Verification of this could not be made by analysis of the gas in the chamber since the attendant had torn open the cellophane covering of the tank in his eagerness to save the animal. Dr. E. M. Butt of the department of pathology autopsied the animal and reported: "Grossly and microscopically there are no lesions suggestive of chronic or acute pathologic processes. Apparently the cause of death is asphyxiation."

The test was repeated on two monkeys, and safety traps were introduced into the supply lines which would automatically prevent asphyxia from failure of the air supply.

* From the laboratories of the Department of Physiology, School of Medicine, University of Southern California.



Chart 1.—Before exposure.

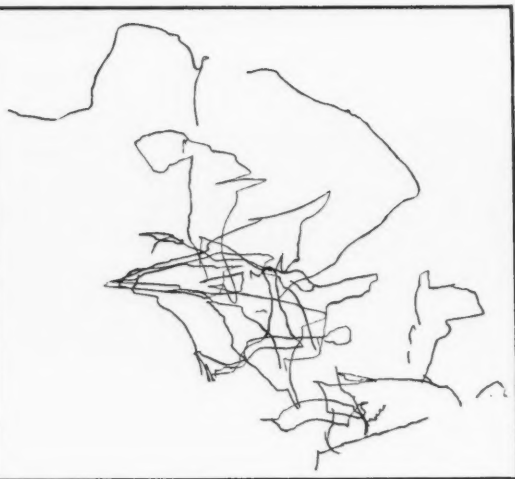


Chart 2.—During exposure.

These monkeys were exposed for thirty-one days in a 25 to 30 per cent gas-in-air mixture. At all times they remained in excellent condition, eating well and becoming quite tame as the experiment progressed. On the thirty-first day they were taken out and killed, and thorough autopsies were carried out by Dr. E. M. Butt, who reported: "Grossly and microscopically, no pathologic lesions of any type are found. The monkeys are normal."

The changes in weight and red blood count are as follows:

Table Showing Changes in Weight and Blood Count				
	Weight in Pounds		Red Blood Cell Count (Millions)	
	Before	After	Before	After
1	5	4½	4.9	6.7
2	6½	5¾	4.8	6.9

These changes can be entirely accounted for by the lowered oxygen tension to which the animals were subjected. The gas diluted the air to the extent of 30 per cent, so that the oxygen percentage in the air breathed must have fallen to about 15 per cent. This alone would have caused the slight drop in weight and the marked rise in the red blood count.

EXPERIMENTS ON HUMANS

Procedure.—These were conducted in a room that was completely isolated and where every precaution could be taken for safety from fire. The dimensions of the room were 13 by 11½ feet, and 10 feet high. It was made reasonably airtight, and a small amount of gas was run in constantly to maintain the concentration which would otherwise fall as a result of seepage. Analysis for gas and oxygen were carried out constantly, and the proper concentrations were maintained throughout. Four male subjects were exposed for

two hours to a concentration of 25 per cent gas in air. Tests were made on them before, during and after the exposure.

General Reaction.—Subjectively, the men experienced no symptoms except the smell of the gas and a sense of mild exhilaration. No after-effects were experienced, no disturbances of appetite or eating.

Eyes.—Visual acuity, as determined by Snellen's test types, was unchanged during or after the exposure.

Central Nervous System.—The amount of swaying that the subject evidenced in the attempt to maintain a perfectly steady upright posture was graphically depicted by attaching a writing lever to the subject's head which recorded any movement of the head during three minutes on a smoked paper fixed above. This gives an excellent indicator of the functional condition of many parts of the neuromuscular system, which play a part in the righting reflexes involved here. The eyes, semicircular canals, and skin, muscle and joint sense of the legs are the sensory organs of these reflexes. Important pathways and centers of

TABLE 2.—Pulse Rate

Subjects	Before Exposure	After Exposure of		
		Half Hour	One Hour	Two Hours
A	68	72	66	66
B	72	72	72	72
C	96	84	78	78
D	84	72	66	66

Systolic Blood Pressures

Subjects	Before Exposure	After Exposure of	
		One Hour	Two Hours
A	108	104	106
B	118	112	106
C	160	128	112
D	138	110	112

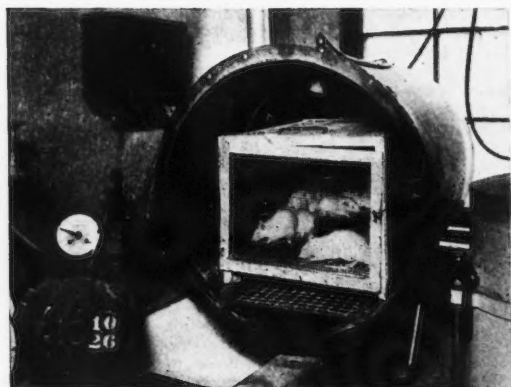


Fig. 1.—View of animal tank

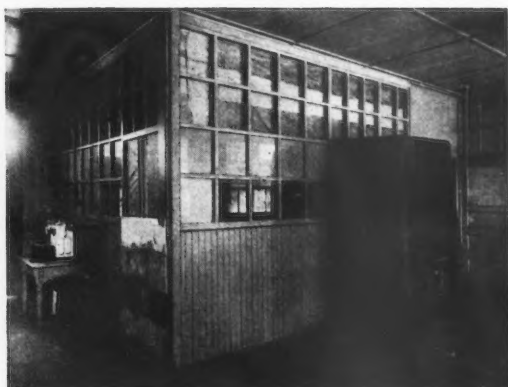


Fig. 2.—View of room used for human subjects

the central nervous system are concerned in these reflexes and, of course, also the sensory and motor nerve trunks together with the muscles of the legs. We have a simple procedure here which tests the functioning of a considerable portion of the neuromuscular system. The exposure to gas had no effect on the ability of the subject to maintain the upright position; the total amount of movement and the limits of swaying being the same as in the control period. Charts 1 and 2 illustrate this.

The functioning of the higher centers was tested by having the subjects do mental arithmetic. The times taken to do problems in addition were determined. No change in the time taken to do the addition, nor the tendency to make mistakes was noted.

Temperature and Respiration.—Both body temperature and respiratory rate were constant throughout, being unaffected by the exposure.

Circulatory System.—Pulse rate, blood pressure and electrocardiograph records were made. Table 2 gives the pulse rates and blood pressures.

In the cases of subjects C and D we see elevated pulse rates and blood pressures before the tests which came down to normal in the gas chamber. This was undoubtedly due to apprehension on their part before the test. The electrocardiograms were taken before and after exposure. They were unchanged by the stay in the gas chamber. All records were normal.

TABLE 3.—Blood Lactic Acids

Subject	Before	One-Hour Exposure
A	28.1	27.0
B	13.3	10.8
C	21.2	11.5
D	12.0	11.2
<i>Blood Sugars</i>		
Subject	Before	One-Hour Exposure
A	99	89
B	85	84
C	108	94
D	105	89

Kidneys.—Urine was collected after exposure. They were all negative for sugar, albumen, and casts.

Blood Chemistry.—Blood samples were taken for determination of sugars and lactic acid. Table 3 gives the results.

These figures do not indicate any significant action of the gas. The small drop in blood sugars during the morning (the subjects had had breakfast) is not unusual. It is evident that no glycogenolysis in the liver, or glycolysis in the muscles, has been caused by the gas. Many toxic agents cause rises in blood sugar and blood lactic acid on their application; most anesthetics do this. Any appreciable secretion of adrenalin would cause rises in these figures. We may say, then, that the gas had no effect on these functions.

EXPERIMENTS WITH VERY HIGH CONCENTRATIONS OF GAS

A monkey and six rats were kept eight hours in the tank in which the gas mixture was maintained at 80 per cent gas and 20 per cent oxygen. The animals remained quite normal in appearance, with their usual amount of activity. This eight-hour exposure was repeated on the following day with the same negative results. They seemed normal in all respects after they were taken out. The monkey was killed, Doctor Butt performed the autopsy and reported all tissues normal. The rats were observed for a month after exposure and remained in excellent condition. We were,

TABLE 4.—Analysis

Fraction	Per Cent by Volume	Gasoline Content Gal. Per MCF
Air	Trace
Carbon dioxide	0.4
Methane	90.00
Ethane	4.63
Propane	3.91
Isobutane	0.47	0.15
n-Butane	0.51	0.16
Pentanes-plus	0.08	0.03
Total	100.00	0.34

(Traces of light gasoline fractions calculated as n-Petane.)

therefore, unable to show any action of the gas at all, even with very high concentrations. As far as our tests go, it is as inert as nitrogen.

COMMENTS

In applying our results to natural gases in other localities, cognizance must be taken of differences in composition. A sample of our gas taken on October 29, 1936, was analyzed by Edgar E. Shafer, Jr., Los Angeles, who reported as outlined in Table 4.

Probably the only significant components which might give physiologic effects, if present in higher concentrations than in our gas, are the higher hydrocarbons-hexane and higher. Patty and Yant¹ report vertigo after ten minutes' exposure to 0.5 per cent hexane and "marked vertigo and incoördination; hilarity lasting thirty minutes after exposure," after fifteen minutes' exposure to 0.5 per cent heptane. These compounds are ordinarily quite thoroughly removed by oil companies supplying gas, but it might be that some natural gases contain enough of these substances to have some action. The slight exhilaration noted by our subjects might have been due to the traces of these present in our gas. It seems hardly necessary to add that any definitely toxic compounds, such as hydrogen sulphid, would affect the physiologic action of the gas. Also, it must be remembered that faulty combustion of natural gas, in burners or heaters, can give rise to carbon monoxid—a decided poison.

Our observations on animals extended from February, 1936, to August, 1936.

SUMMARY

Natural gas, as supplied to domestic consumers in Los Angeles, is without demonstrable effect on human beings in concentrations of 25 per cent.

Animals kept in 25 per cent gas for thirty days remain normal in every respect.

Animals exposed to 80 per cent gas for eight hours were unaffected.

Department of Physiology,
University of Southern California Medical School.

REFERENCE

1. Patty, F. A., and Yant, W. P.: U. S. Bureau of Mines Report of Investigations, No. 2979.

DISCUSSION

A. G. FOORD, M. D. (Huntington Memorial Hospital, Pasadena).—The experiments of Doctors Tyler and Drury verify the large amount of work done by the United States Bureau of Mines, which shows that the great danger in gases is from carbon monoxid and not methane. The work demonstrates the nontoxicity of methane, and the analysis of the gas furnished by the authors is informative; but care must be taken not to consider the figures offered as the amount of various gases that may be present at some later time. Sometimes poisonous gases, including carbon monoxid, may be added without our knowledge. The clinical observations at our hospital are in keeping with the authors' experimental results, since the patients who have entered our hospital for gas poisoning, obtained in their homes in the last few years, have been those affected by carbon monoxid formed by incomplete oxidation of the gases present in the natural gas furnished in Pasadena. None have come in because of exposure to escaping non-burning gas; but several failures of attempt at suicide by inhaling natural gas have been reported in our city.

F. W. SIEGMUND, M. D. (740 South Broadway, Los Angeles).—This foregoing report covers the findings of the research itself so completely that further technical discussion seems unnecessary. Perhaps, however, it would be in order to mention the reasons for undertaking this experiment. Whether due to popular misconceptions, or whether motivated otherwise, the alleged toxicity of natural gas has been the basis of a number of suits against the gas-distributing companies of Southern California in recent years. For example, in the case of Emma B. Clifford and H. B. Clifford, husband and wife, versus the Southern Counties Gas Company of California, the complaint was as follows:

"That on or about August 1, 1932, the defendant, Southern Counties Gas Company of California, was engaged in the business of supplying gas to homes for domestic use and maintained and operated its gas mains, pipes and system for that purpose, and that said defendant on said date did have its gas pipes and system in the vicinity in which plaintiffs lived and in the home of the plaintiffs, located at 11531 Braddock Drive, Culver City, California, for the purpose of distributing gas in said vicinity and supplying gas to said home; and that certain of said gas pipes and system were connected with a heater in said home.

"That at said time and place the said defendants carelessly and negligently maintained and operated said gas pipes and system in said vicinity and home, and negligently permitted water to enter and remain in said gas pipes and system, and negligently suffered and allowed said gas pipes and system so connected with said home and heater to leak, escape and emit gas, causing the plaintiff, Emma B. Clifford, while engaged in her household duties, to become asphyxiated and suffocated by the fumes of said gas; and to suffer injuries as follows: that said plaintiff was rendered unconscious and confined to her bed for several weeks, and she became irrational, suffered from stomach trouble, nervous shock, numbness, and general disability."

As a result of the evidence introduced in the case, the judgment of the court was that the plaintiff, Emma B. Clifford, was not asphyxiated or suffocated by the fumes of any gas, and plaintiff, Emma B. Clifford, suffered no injuries as a result of any asphyxiation.

My experience in handling medical work with gas company employees, many of whom at times are exposed to natural gas, had led me to conclude that there is virtually no basis for the assumption that natural gas is toxic. Consequently, when Mr. A. F. Bridge, Vice-President of the Southern Counties Gas Company, proposed the experiment under discussion, I was of the opinion that it could be carried out with human subjects with little hazard. As shown in the report, the research clearly demonstrated that claims such as those made in the allegations quoted above are without foundation.

A survey of obtainable literature relative to the subject proved very unsatisfactory, as extensive tests of this type had not previously been conducted. The matter was finally taken up with Doctor Drury of the University of Southern California Medical School, who kindly consented to work with us in conducting some experiments.

The first tests were carried out upon animals, rats, and monkeys used as the subjects. These experiments took place in the laboratories at the University of Southern California, and under direct supervision of Doctor Drury. After being kept in a gas tank for thirty days, the animals were found to be normal in every respect. A litter of rats born during this period were seemingly in a healthy condition.

Arrangements for the tests on humans were under the supervision of Mr. G. Corfield, research engineer for the Los Angeles Gas and Electric Corporation, and were carried out under the direction of Doctor Drury, Mr. Corfield, and myself.

This experiment was conducted at the plant of the Los Angeles Gas and Electric Corporation, and I was asked to carry on the examination of the four men chosen for the test. In order to note subjective symptoms of exposure more accurately, I spent some two hours and thirty minutes in the room with these men, checking pulse, temperature, respiration, blood pressure, and pupillary reactions. During the entire time, the only symptoms noted were those of a slight dryness of the membranes of the nose and throat.

ARTHUR E. GUEDEL, M.D. (613 North Elm Drive, Beverly Hills).—This excellent report of very practical research is worth while. Most of us look upon illuminating gas as lethal. This is probably because we have seen many deaths from gas inhalation in communities where so-called artificial gas (coal gas) is used for heating or illumination.

There is nothing to be added to Doctor Drury's paper, so far as natural gas is concerned. However, it is well to sharply differentiate between natural gas and gas manufactured from coal.

The concentration of the olefines such as ethylene, butylene, and propylene, in either natural or artificial gas, is insufficient to produce any harmful effects in the ordinary accidental or suicidal admittance into a room.

The difference between the two gases, from a toxic standpoint, depends upon the amount of carbon monoxide that they contain. In natural gases this is usually of insignificant quantity. In artificial or coal gas, however, the carbon monoxid tensions are from 2 to 10 per cent, or even higher; and it is this gas which is responsible for the accidental and suicidal deaths that have appeared so frequently.

It must also be remembered that in natural-gas communities, in emergencies of great consumption, this gas is replenished by artificial or coal gas. In other communities in which the natural gas is of insufficient caloric value, it may be enriched by manufactured gas. In either case the amount of carbon monoxid delivered by the artificial gas might prove fatal.

I must confess that my own idea of gas delivered by a gas jet or a furnace has been that of a lethal gas. I am indebted to Doctor Drury for correcting that impression.

It is to be suggested that we still consider all illuminating and heating gases as toxic, because we cannot expect the gas companies to notify us when they are replenishing or fortifying their natural gas with artificial gas.

From a suicidal standpoint, however, it is probable that a hand-to-hand fight with a grizzly bear would be more certain.

THE PATHOGENESIS OF OTOGENOUS CEREBELLAR ABSCESS*

A STUDY OF SIXTEEN CASES VERIFIED AT AUTOPSY

By CYRIL B. COURVILLE, M.D.

AND

J. M. NIELSEN, M.D.

Los Angeles

DISCUSSION by Carl W. Rand, M.D., Los Angeles; Rupert B. Raney, M.D., Los Angeles; Frank E. Delling, M.D., Los Angeles.

INTRODUCTION.—For the past five years the writers have been particularly interested in the various intracranial complications of otitis media and mastoiditis. Our interest in this phase of neurology may be traced to the time when we were first asked to see patients on the wards of the service of otorhinolaryngology at the Los Angeles County Hospital. Much to our chagrin, we were all too frequently unable to give an intelligent opinion as to what was taking place within the dura. Determined to correct this situation, at least in so far as we were concerned, we set ourselves to the task of working on the various problems which soon confronted us. One problem which we deemed of greatest importance, so far

as the patient was concerned, was the relationship between the various pathways of invasion to the intracranial space and the early clinical manifestations of the various intradural lesions resulting from such an extension.

Thus a rather unusual situation has developed. We find ourselves, as neurologists, critically inspecting from the interior of the skull the bulwarks of the petron to determine the weak points in its line of defense. Hitherto, our colleagues in otology have particularly interested themselves in following the organisms through the holes and seeing what happens inside as a result of the invasion. If, in our interest, we have been guilty of looking over the line of the petrous ridge to check on ourselves, we trust that we may be forgiven for overstepping that thin frontier between the two specialties—the dura mater.

In a recent report,¹ a survey was made of the pathogenesis of otogenous abscess of the temporal lobe. The present one is concerned with the pathways of infection to the cerebellum. Our own experience is based upon a study of twenty-one cases of verified otogenous cerebellar abscess. To correlate our findings with those of other observers, a survey of the important monographs concerned with abscess in this situation have been reviewed.

UNDERLYING FACTORS IN CEREBELLAR AND TEMPORAL ABSCESSSES

While the essential underlying factors concerned with extension of infection are the same in cerebellar as those in temporal abscess, certain differences should be given consideration. For instance, perhaps in no other part of the brain are abscesses so likely to be due to otitis media as are those of the cerebellum. Moreover, the peculiar anatomic structure and relationship of the cerebellum make the problem of extension entirely different than in otogenous abscess above the tentorium. For example, labyrinthitis has proved to be much more often the cause of cerebellar than of temporal abscess. Furthermore, the peculiar relationship between the cerebellum and the lateral sinus favors the development of a cerebellar rather than temporal abscess in infectious lesions of this structure. The size and arrangement of the cerebellar folia and their relationship to the posterior wall of the petrous pyramid present a different anatomic situation than do the larger cerebral convolutions.

In order for us to get a proper survey of the problem, we have taken for a basis 122 cases of abscess of the brain found in a series of over 15,000 autopsies. The source of these abscesses and their location are surveyed in Table 1.

It is of interest to note that, of all the cerebellar abscesses which come to autopsy, a great percentage of them are otitic in origin. For some reason or other metastatic abscesses are relatively uncommon in the cerebellum. This is probably because the arterial route to the structures in the posterior fossa is much more indirect, as compared with the one more direct by way of the common carotid artery. Only one instance of cere-

* From the Departments of Neurology of the College of Medical Evangelists and of the School of Medicine, University of Southern California, and the Cajal Laboratory of Neuropathology, Los Angeles County Hospital.

Read before the Neuropsychiatry Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.

TABLE 1.—*Sources of Infection in Abscesses of the Brain in a Series of 15,000 Autopsies**

Otitis media and mastoiditis	47
Accessory nasal sinuses	13
Suppurative diseases of the lungs and pleura	12
Endocarditis	7
Infections of adjacent skull and face	4
Gastro-intestinal tract, including accessory glands	3
Secondary to dental infections	3
Rare sources	3
Source of infection unknown	30
Total	122

* Cases of traumatic abscess are not included in this series. Autopsies on cases of injury are performed by the county coroner.

bellar abscess, not due to otitis media, was found in the series. This one was apparently secondary to pneumonia. From the standpoint of cerebellar abscess, we are concerned essentially, therefore, with those of otitic origin. A study of the possible routes by which this infection reaches the cerebellum forms the basis for this review.

ESSENTIAL FUNDAMENTALS

The cerebellum is actually more distant from the middle ear than is the temporal lobe. To reach this structure by contiguity, it is necessary for infection to spread either (1) within the mastoid cells, particularly those in the superior group; (2) into the cells of the petrous pyramid, or (3) into the labyrinth itself. The intervening cellular spaces must be invaded consecutively before the infection can pass on to reach the cerebellum. If, perchance the infection reaches the cerebellum by way of a vascular channel, it must first invade the lumen of a vessel draining into the lateral sinus or superior petrosal sinus. While it is possible for extension to the cerebellum to occur without gross involvement of the venous channel itself, such an eventuality is the exception rather than the rule. The channel is usually first occluded by a thrombus.

A study of the statistics concerned with otitic complications sheds some light on the pathogenesis of cerebellar abscess. Judging from a survey of the literature,² otogenous cerebellar abscesses are about one-half as common as cerebral abscesses. Cerebellar abscesses are more common in the second and third decades of life than in the first, contrary to the opinion of some. They occur almost twice as often in males, as compared with females (7 to 4), although the percentage of cerebral abscesses in males is even greater (9 to 4). Cerebral abscesses occur slightly more often on the right while cerebellar abscesses are slightly more common on the left. This difference is not very marked, perhaps not important enough to warrant serious consideration.

The possible routes to the cerebellum which infection may travel are (1) by way of preformed paths, (2) through intermediate cellular involvement, (3) by way of the labyrinth, (4) by way of venous channels, and (5) following surgical exploration through the infected mastoid wound. The routes followed by infection in our series of sixteen autopsied cases are shown in the accompanying table (Table 2).

EXTENSION BY WAY OF PREFORMED PATHS

There are a number of preformed channels through which infection from the middle ear may reach the cerebellum, *i. e.*, internal auditory meatus, the facial canal, aqueductus vestibulae (containing the ductus endolymphaticus) and aqueductus cochleae, and, particularly in the children, the petrososquamosal suture and the hiatus subarcuatus. The statement of af Forselles³ to the effect that infection of the brain by way of preformed channels is more apt to occur in the posterior fossa, but in the posterior fossa extension by such channels is more apt to result in meningitis than abscess, is probably quite the case. The widened subarachnoid spaces (cisterns) in proximity to the posterior surface of the petrous bone favor the dissemination of infection in the cerebrospinal fluid rather than its localization in the cerebellum, pons or middle cerebellar peduncle.*

Extension by way of the vestibular and cochlear aqueducts logically follows labyrinthine infections, and these possibilities will be considered in a later section.

In a collected series of eighty-eight cases of otogenous cerebellar abscesses, Blau⁴ found two cases which he concluded were due to extension by way of the hiatus subarcuatus, one following acute and the other chronic otitis media. In Eagleton's collected series⁵ of 125 cases of cerebellar abscess, he found five in which the extension was thought to be by way of the hiatus subarcuatus. Cerebellar abscess resulting from extension by way of the petrososquamosal suture must be rare indeed. Extension by way of the facial canal is likewise rare, although the collected series of both Blau⁴ and Eagleton⁵ list an abscess with such an etiology.

Pontippidan⁶ believes that extension by way of the porus acusticus internus may result in abscess of the middle cerebellar peduncle. In Eagleton's series,⁵ seven of one hundred and twenty-five cases of cerebellar abscess were thought to be due to infection by this route.

EXTENSION THROUGH INTERMEDIATE CELLULAR INVOLVEMENT

The posterior fossa is separated from the middle ear by interposed bone which shows variable degrees of pneumatization. Extension in this direction takes place in a great many instances after a preliminary involvement of one or more of these cell groups. The cell groups through which the infection may pass are those (a) in the petrous angle, with extension through Trautmann's triangle; (b) about the sigmoid sulcus, with extension through the lateral sinus or on either side of it; (c) posteriorly placed mastoid cells;

* In this connection should be stressed one type of otitic cerebellar abscess which is of more interest to the pathologist than the clinician. In some cases of subacute otitic meningitis, in which there is a heavy accumulation of exudate in the lateral cisterns, one or more small circumscribed, but poorly encapsulated, abscesses may develop in the superficial portion of the middle cerebellar peduncle, in the pons or within the folia forming the anterior border of the cerebellum. Occurring as they do shortly before death, it is very doubtful whether they produce any detectable symptoms.

TABLE 2.—Series of Sixteen Cases of Verified Cerebellar Abscess

No.	Case No.	Age	Sex	Otitis Media		Mode of Extension	Location and Type of Abscess	Organism	Associated Pathology
				A or C	R or L				
1	609	11	F	?	R	Petrous angle	Large abscess—right hemisphere and vermis	Streptococcus (H)	
2	713	14	M	C	R	?	Small abscess—right hemisphere	?	Meningitis.
3	1388	9	F	A	R	Petrous angle	Large abscess—right hemisphere	Streptococcus (H)	Postoperative abscess right temporal lobe. Meningitis.
4	3187	30	M	C	L	Petrous angle	Small abscess—left hemisphere	E. Proteus streptococcus	Subdural abscess.
5	4673	46	M	C	R	Labyrinthitis	Small abscess—right hemisphere	Mixed	Labyrinthitis.
6	6516	5	M	C	R & L	Lateral sinus	Small abscess—right hemisphere	Pneumococcus	Subdural abscess right lateral sinus thrombosis. Meningitis.
7	7341	5	M	C	R & L	?	Large abscess—right hemisphere—drained at operation	Streptococcus	Meningitis.
8	8500	51	F	C	L	Petrous angle	Small superficial abscess	Pneumococcus	Subdural abscess.
9	8645	47	F	C	R	Petrous angle	Abscess 3 centimeters in size—right hemisphere	Streptococcus	Extradural abscess. Meningitis.
10	9228	15	M	C	L	Lateral sinus	Large abscess—left hemisphere	Pneumococcus	Lateral sinus thrombosis. Subdural abscess.
11	9558	31	M	A	L	Petrous angle or lateral sinus	Small interfoliar abscesses	Pneumococcus	Extradural abscess. Lateral sinus thrombosis.
12	9844	33	F	A	L	Meninges (postmeningitic), Lateral sinus?	Small abscess—left middle cerebellar peduncle	Streptococcus	Meningitis—basilar lateral sinus thrombosis.
13	11067	28	M	C	L	Petrous angle	Multiloculated abscess of left cerebellar hemisphere	Streptococcus	Subdural abscess. Thrombosis left lateral sinus.
14	11325	56	F	C	R & L	Petrous angle	Encapsulated abscess, walnut size	Streptococcus	Subdural abscess.
15	12632	8	M	C	R & L	Lateral sinus	Large circumscribed abscess in left hemisphere	?	Thrombosis left lateral sinus. Meningitis.
16	14251	28	M	C	L	Petrous angle?	Large abscess—left hemisphere	?	Abscess in left temporal lobe.

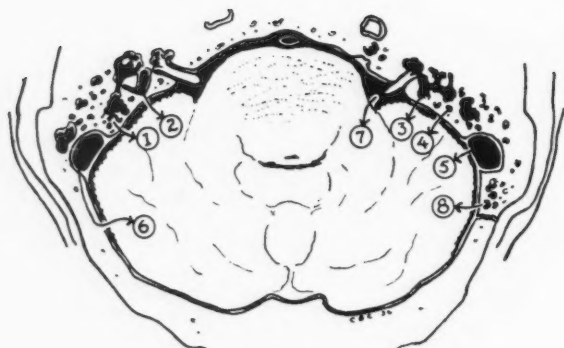


Fig. 1

Fig. 1.—Pathways of infection from the temporal bone into the cerebellum. (1) Through petrous angle (Trautmann's triangle). (2) Posterior semicircular canal. (3) Vestibule of labyrinth (ductus endolymphaticus). (4) Perilymphathine cells. (5) Through lateral sinus. (6) Along lateral sinus and cerebellar veins. (7) From exudate in lateral pontine cistern. (8) Through posteriorly placed mastoid cells.



Fig. 2

Fig. 2.—Pathways of infection from the labyrinth. The right organ is shown. The heavy diagonal stripe is the superior petrosal sinus.

(d) perilymphathine cells; and, theoretically, the (e) apical petrosal cells. The possibilities of extension from the adjacent bone are shown in the accompanying figure (Fig. 1).

(a) *Erosion Through the Petrous Angle (Trautmann's Triangle).*—This route of extension is one of the more common ones, since it is the shortest line to the posterior fossa from the mastoid antrum. In Blau's series of eighty-eight cases, extension through the posterior antrum wall occurred in the fifteen cases (17 per cent), two after acute and three after chronic otitis media. In Eagleton's collected series of 125 cases, caries of the petrous bone was present in twenty-two instances (17.6 per cent), although the exact site of the caries was not stated.

In no other route of the extension is the classic "layer-by-layer" mode of invasion so often and so characteristically seen as it is in this situation. The cells in the petrous angle are almost invariably filled with exudate and the bone, forming Trautmann's triangle, is usually carious. The dura is diseased and usually there is a circumscribed subdural accumulation of pus, walled off by local adhesions between the dura and arachnoid.[†]

The resultant cerebellar abscess may be small (interfoliar abscess) or large. In the latter case it dissects its way between the folia of the superior or inferior surface of the cerebellum. These interfoliar abscesses, whether large or small, are as a rule poorly encapsulated, having for their walls, at least in the early stages, the pia covering the foliar surfaces. Small abscesses, of course, are not surgical and may not provoke clinical manifestations. The larger ones may give rise to localizing symptoms, and at times moderate symptoms of in-

creased intracranial pressure. Because of poor encapsulation, surgical exploration frequently fails in its effort to drain the abscess.

We believe this route is more common than is usually suspected. It proved to be the fact in seven of our sixteen cases, and was the possible route in two others. This seems to emphasize the necessity of cleaning out the petrous angle at the time of mastoidectomy when extension into the posterior fossa is suspected.

(b) *Erosion Through the Sigmoid Sulcus.*—Erosion of the sinus plate is a common finding in mastoid operations, and yet it is followed by cerebellar abscess in only rare instances. In Blau's series⁴ there were nine of the eighty-eight cases of cerebellar abscess with erosion of the sigmoid sulcus, this aside, apparently, from fourteen other cases with thrombosis of the lateral sinus. The lateral sinus is interposed between the plate and the posterior fossa. Erosion of bone in this situation is, therefore, only the first stage of pathogenesis. In order for a cerebellar abscess to form, the dura on either side of the sinus must be penetrated, the infection must pass directly through walls of lateral sinus or along this channel into the cerebellar veins. In the first case, extension through the dura occurs most often in the petrous angle (through Trautmann's triangle). Extension occurring by way of the lateral sinus will be discussed further.

(c) *By Way of Posteriorly Placed Mastoid Cells.*—As to extension of infection to the cerebellum by way of the posterior mastoid cells such an eventuality must be extremely rare. While in some instances infected cells are to be found posterior to the lateral sinus, at times extending well back toward the occiput, the inner table does not often seem to be involved. In our day such extensive mastoids are usually promptly operated, but if unoperated the patient succumbs to the mastoid infection before time permits the develop-

[†]At times this subdural collection of exudate assumes sufficient proportions to be classified as a subdural abscess. It may provoke lateralizing cerebellar symptoms without elevating the intracranial pressure. In such cases an antemortem diagnosis is almost impossible to make, and corrected treatment is, therefore, seldom applied.

ment of a cerebellar abscess. No such case has come to our personal attention, although there was an instance of this etiology in Blau's series which followed an acute otitis media.

(d) *Extension by Way of the Perilabyrinthine Cells.*—The cells about the bony capsule of the labyrinth show great anatomic variation from one case to another. No doubt these cells are more frequently affected, to some degree at least, than is generally supposed. In most instances this comes about by direct extension from the antrum or the superior group of mastoid cells. It is theoretically possible for these cells to become affected secondarily to labyrinthitis. In the great majority of cases no extension to the posterior fossa takes place. In the relatively few cases in which such extension does occur, it may be *directly* through small local erosion of the inner table or at times through gross necrosis of the posterior surface or the ridge of the petrous bone.[‡] Extension may place *indirectly*, probably less often, by rupture of a cell into the labyrinth or by way of the veins draining into the superior petrosal sinus.

Unless there is gross erosion, it may be difficult or impossible to tell the exact route of extension without critical, histologic studies of the petrous bone. In our series such studies have as yet not been done, and we hope that our colleagues will investigate the situation in the petrous bones which have been saved in many instances for this purpose.

(e) *Possible Extension From Petrous Tip.*—As has been emphasized in another connection,⁷ we do not believe that infection in the petrous tip can produce an abscess of the brain. In the first place, erosion of the inner table of bone results in the formation of a local extradural abscess which is usually followed by meningitis. If by chance infection should gain entrance to the hippocampal gyrus, an abscess could not possibly develop, since the inferior horn of the lateral ventricle lies just above it. Because of the large basilar cisterns, on the other hand, the cerebellum and middle cerebellar peduncle are so removed that it is almost impossible for any direct extension into these structures to occur. We do not know of a single case in which a cerebral or cerebellar abscess has arisen in consequence of infection in the petrous tip. And should such an association occur, we believe that the lesions would be coincidental rather than chronologic.

INFECTION BY WAY OF THE LABYRINTH

The probability of extension of otitic infection to the posterior fossa by way of the labyrinth has been recognized for many years. In 1891 Jansen⁸ reported eleven cases of cerebellar abscess. In seven of these cases pus was found in the vestibule, and in four of them a defect in the horizontal canal was present. In 1900 Okada⁹ collected 109 cases of cerebellar abscess from the literature. In

fifty-two of these (47.7 per cent) pus was found in the semicircular canals at autopsy. Neumann¹⁰ found that labyrinthitis was present in forty-nine cases (43.75 per cent) of a series of 112 cerebellar abscesses. In 1909 Hagener's monograph¹¹ on the subject was published. This study was based on the clinical and pathologic findings in seven cases of cerebellar abscess following labyrinthitis. In Blau's series⁴ of eighty-eight cases, labyrinthitis was said to be the cause of the abscess in thirty-six instances (40 per cent), all due to a chronic otitis media. Eagleton's more recent analysis⁵ of a collected series of 125 cases of cerebellar abscess is of interest. The parts of the labyrinth apparently responsible for the spread of infection to the cerebellum are indicated in the following table:

TABLE 3.—Eagleton's Collected Series of Labyrinthogenic Cerebellar Abscesses

	Cases
Labyrinth proper	19
Semicircular canals	6
Vestibular aqueduct	11
Retrograde thrombosis of vein of vestibular aqueduct	1
Ductus endolymphaticus	5
Internal auditory meatus	7
Facial nerve	1
Subarcuate hiatus	8
Undetermined	5
Undetermined	1
Total	56 (44.8%)

In his recent monograph on the subject of brain abscess as a whole, Atkinson¹² estimates that labyrinthitis is the cause of cerebellar abscess in 50 per cent of the cases secondary to chronic otitis media. In our series, for want of histologic studies of the petrous bone, extension from the labyrinth could be proved in but one case. It is possible that this was the route in some of the others in which the actual path was not determined.

Labyrinthitis* is almost invariably the result of chronic rather than acute otitis media. This is to be explained perhaps by the fact that necrosis of the binding ligaments of the round and oval windows is necessary to permit the ingress of infection by these apertures. Once inside, the process may involve the labyrinth as a whole or may be limited possibly either to the vestibule or the semicircular canals. Extension into the posterior fossa and the cerebellum may occur in a number of ways, *i. e.*, by erosion of the bony capsule of the posterior semicircular canal, by secondary involvement of the perilabyrinthine cells (probably a rare eventuality), by way of the aqueduct vestibule (ductus endolymphaticus) or aqueductus cochleae or, finally, by way of the veins draining the labyrinth (Fig. 2).

* In this connection we are, of course, speaking only of actual invasion of the labyrinth by pyogenic organisms. Toxic or reactive labyrinthitis is a much more common complication of infections of the middle ear, but the symptoms are usually short-lived and tend to clear up, as a rule, when the local region is drained. The symptoms of toxic labyrinthitis, however, may be mistaken at times for those of cerebellar origin because of the vertigo and nystagmus which it provokes.

‡ Gross erosions of the bone in this region are not necessarily followed by invasion of the posterior fossa, although at times the reaction within the dura which such a lesion provokes may simulate a cerebellar abscess. Radiographs of the petrous bone taken in the Towne position are very helpful in such cases.

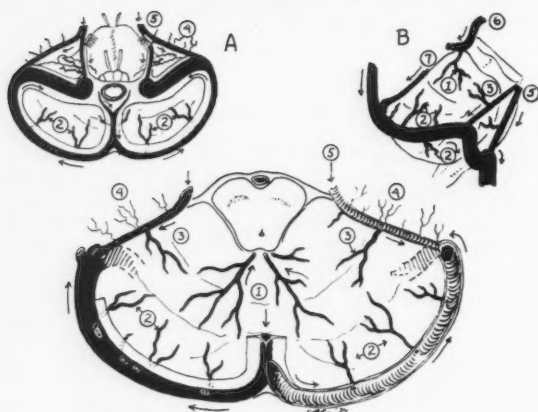


Fig. 3

Fig. 3.—Venous drainage of the cerebellum, showing connections with veins draining proximal part of the temporal bone. Arrows along channels indicate direction of flow. (1) Superior cerebellar veins emptying into veins of Galen. (2) Superior and inferior cerebellar veins emptying into lateral sinus. (3) Superior cerebellar veins emptying into superior petrosal sinus. (4) Veins draining middle ear and labyrinth, emptying into superior petrosal sinus. (5) Point of origin of superior and inferior petrosal sinuses. (6) Small veins of Galen. (7) Straight sinus.

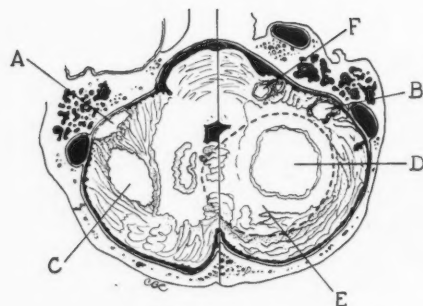


Fig. 4

Fig. 4.—Types of otogenic cerebellar abscesses. (A) Subdural abscess. (B) Small interfoliar abscess. (C) Large interfoliar abscess. (D) Encapsulated central abscess. (E) Large circumscribed, but poorly encapsulated abscess.

The problem of determining what part of the labyrinth is involved in an autopsied case is scarcely of concern to a neurologist whose interest lies particularly in following the clinical course of a case from the symptoms of labyrinthitis to those of the consequent cerebellar abscess. It is rather a problem for the otologist—one with much time, patience, and a flair for histologic investigation.

The actual mode of invasion of the cerebellum in labyrinthitis differs greatly, depending upon the actual route followed. Extension by contiguity is probably the rule. Dural involvement in variable degrees is usually present except in instances of vascular spread.[†]

THE VENOUS ROUTE

The arrangement of the venous channels in this region makes possible an extension into the cerebellum by this route (Fig. 3). At the upper and outer tip of the cerebellar lobe the superior petrosal sinus empties into the genu of the lateral sinus. Veins draining the cerebellum empty into the horizontal portion of the sinus or into the superior or inferior petrosal sinuses. A direct channel for communication of infection from the involved bone in this region into the cerebellum is thus established.

The possibility of involvement of the cerebellum by infection secondary to thrombosis of the lateral sinus was recognized by Macewen.¹³ He was able to trace the process into the cerebellum by way of the cerebellar veins. Blau⁴ found thrombosis of the lateral sinus in forty-four of a series of 133 cases of cerebellar abscess. In Eagleton's collected series of 125 cerebellar abscesses,⁵ sinus thrombosis was present in forty-one cases (32.8 per

cent). He believed that thrombosis of the lateral sinus might be either the cause or the result of a cerebellar abscess. Atkinson¹² believes that in acute otitic infections the route to the cerebellum was by way of the lateral sinus in 50 per cent of the cases. In our series of sixteen cases the lateral sinus was the probable route in three and the possible route in two others.

A retrograde extension into the cerebellum by way of the venous channels is usually preceded by the formation of an infected thrombus in these channels. It is probably possible, however, for this retrograde extension to occur without the formation of a thrombus occluding the channel, such as is the case of distant abscesses of the cerebral hemispheres.^{14†}

When infection follows the venous channels, the abscess may be located in relatively more distant parts of the organ, because the larger portion of the cerebellum is exposed to possible lodgment of organisms by these channels.* If multiple regions should become infected, multiple abscesses will result; unless perchance these foci are in close enough proximity to become confluent.

The first lesion is probably an area of hemorrhagic softening incident to obstruction of the venous pathways. The hemorrhagic foci are due to a rupture of the smaller venules drained by the involved vein. The softened tissue in this region

† In this connection, infection by direct penetration through the sinus should also be mentioned. In such a case the abscess results from an extension of an infected thrombus through the posteromedial wall of the sinus into the subdural space and from thence into the cerebellum. This does not seem to be a very common method of invasion of the cerebellum.

* Eagleton has divided the cerebellum into an anterior one-third, in which adjacent abscesses are apt to occur, and a posterior two-thirds in which abscesses due to thrombosis of the lateral sinus may be found. This division is not entirely consistent, because it is possible for large adjacent abscesses to extend into the posterior portion of the hemisphere. Furthermore, through involvement of the superior petrosal sinus and its afferent veins, the anterior part of the cerebellum is also exposed to infection via the venous route.

† One mode of spread has been the subject of considerable discussion, that by way of the ductus endolymphaticus, with a resultant interaural abscess or abscess of the saccus endolymphaticus. The condition, a rare one, has been ably discussed by Körner and Grünberg (*Otitischen Erkrankungen*, pp. 39, 40).

furnishes an excellent medium for the organisms which invade it secondarily. The size of the abscess will at first be limited by the extent of this softened region. But it is also possible for secondary abscesses to form if the organisms are of sufficient virulence.[†]

POSTOPERATIVE ABSCESS

On reviewing the literature on otogenous abscess, one occasionally finds a report of a case in which an abscess was finally found to be present in the temporal lobe or cerebellum. More careful scrutiny will often disclose the fact that the affected part had been repeatedly probed through the contaminated mastoid wound. We are convinced that it is not only possible but very likely that infection is carried into the brain on the exploring needle. The organisms find an excellent medium for growth in the traumatized tissue. In our study on the pathogenesis of temporal abscess,¹ attention was drawn to this possibility as one of the ways in which organisms may gain entrance to the brain. No such instance was found in this series of cases verified at autopsy.

SUMMARY AND CONCLUSIONS

1. Abscesses in the cerebellum are predominantly otogenous, the relative incidence being much higher than in other portions of the brain. This is probably to be explained by the relative inaccessibility of the cerebellum to infective emboli arising in more distant situations. In a series of fifteen thousand autopsies, twenty-two cases of isolated cerebellar abscess were found, twenty-one of which were of otitic origin.

2. Otogenous cerebellar abscess is more common in males, although less so than temporal abscesses. It is more common in the second and third decades of life, which is contrary to the opinions of some. It is probably more common after chronic than acute infections, because the route is usually less direct and calls for the involvement of intervening structures. The lesion seems slightly more frequent on the right side.

3. The routes of infection from the middle ear to the cerebellum are often devious and at times complex. Often two or more possible modes of extension are present in a single case, and it is not so easy to decide which is responsible, as some reports would lead us to believe. Organisms may reach the posterior fossa (1) by way of preformed channels (although such extension is more apt to cause meningitis); (2) by way of adjacent cell groups (most commonly those in the petrous angle); (3) by way of the labyrinth (where again the actual route of extension into the cerebellum may be by any one or more of several routes); (4) by way of connected venous channels; and (5) by surgical implantation. In our series of sixteen autopsied cases, extension was by way of the petrous angle in seven cases (with two others possibly by this route), by way of the lateral sinus

in three others (with two additional ones uncertain). Labyrinthitis was responsible for the abscess in only one definite instance, although it was possibly responsible in two questionable cases as well, since no other possible route was demonstrated. In one case of multiple small abscesses of the middle cerebellar peduncle, infection was secondary to leptomeningitis. In still another case there was both erosion in the petrous angle and thrombosis of the lateral sinus. Undoubtedly in many cases a combination of two or even more of these routes may be followed to reach the cerebellum.

4. The number, type, and location of otogenous abscesses of the cerebellum are dependent upon the route of infection, the anatomic relationships of the structures in this region and the peculiar structure of the cerebellum.

5. Attention is drawn to small abscesses of the middle cerebellar peduncles secondary to exudate (leptomeningitis) in the lateral cistern.

6. In abscesses resulting from extension of infection through Trautmann's triangle, dural and subdural infection are almost invariably the rule and constitute an important and characteristic pathologic picture.

7. Extension by way of the venous channels may result in abscesses in relatively distant parts of the cerebellum. In such instances multiple abscesses may be present.

White Memorial Hospital.
727 West Seventh Street.

REFERENCES

1. Courville, C. B., and Nielsen, J. M.: The Pathogenesis of Otogenous Abscess of the Temporal Lobe, *West. J. Surg.*, 43:681 (Dec.), 1935.
2. Courville, C. B., and Nielsen, J. M.: Intracranial Complications of Otitis Media and Mastoiditis, *Acta Otolaryng.*, 21:19, 1934.
3. af Forselles, A.: Der otitische Hirnabszess, *Pathologie und Therapie, Acta Oto-laryng.*, 10:395, 1927.
4. Blau, L.: Zur Lehre von den otogenen intrakraniellen Erkrankungen, *Extraduraler Abszess*, Passow's Beitr., 12:1, 1919.
5. Eagleton, W. P.: Brain Abscess—Its Surgical Pathology and Operative Technique, pp. 88-90, 1924. The Macmillan Company, New York, 1924.
6. Pontippidan, F.: Discussion of af Forselle's paper.³
7. Courville, C. B., and Nielsen, J. M.: Fatal Complications of Otitis Media, *Arch. Otolaryng.*, 19:451 (April), 1934.
8. Jansen, A.: Ueber otitische Hirnabszesse, *Berlin Klin. Wchnschr.*, 28:1162, 1891.
9. Okada, W.: Diagnose und Chirurgie des otogenen Kleinhirnabszesses, *Klin. Vorträge aus dem Gebiete der Otologie und Pharyngo-Rhinologie*, 3:313-450, Jena, Gustav Fischer, 1900.
10. Neumann, H.: Der otitische Kleinhirnabszess, *Leipzig, Franz Deuticke*, 1907.
11. Hagener, J.: Labyrinthitis und Hirnabszess, *Berlin, S. Karger*, 1909.
12. Atkinson, E. Miles: Abscess of the Brain—Its Pathology, Diagnosis and Treatment, *Medical Publications, Ltd.*, pp. 7-8, London, 1934.
13. Macewen, William: The Pyogenic Infective Diseases of the Brain and Spinal Cord, *Glasgow, James Maclehose & Sons*, 1893.
14. Courville, C. B., and Nielsen, J. M.: Otogenous Abscess of the Parietal Lobe, *Arch. Surg.*, 30:930 (June), 1935. Nielsen, J. M., and Courville, C. B.: Otogenous Abscess of the Frontal Lobe, to appear in *Acta Otolaryng.*

[†] In this connection other possible lesions in the posterior fossa secondary to thrombosis of the lateral sinus should be given consideration, namely, subdural abscess, subdural hemorrhage, and uncomplicated red softening of the cerebellar tissue. These lesions have been described elsewhere.⁷

DISCUSSION

CARL W. RAND, M.D. (1023 Pacific Mutual Building, Los Angeles).—It gives me particular pleasure to discuss this paper of Doctors Courville and Nielsen. During the past five years they have given much time and close, critical attention to the various modes of brain-abscess formation and dissemination.

I have long been impressed by the fact that cerebellar abscesses are less well encapsulated than those of the cerebrum. This seems to be the case at any time during the life history of the disease. Not infrequently a poorly encapsulated cerebellar abscess may be successfully drained. Poor encapsulation of a cerebral abscess, on the other hand, spells a poor prognosis from the standpoint of drainage. The relatively poor encapsulation of cerebellar abscesses the authors explain by the fact that the abscess frequently forms between the layers of the folia, rather than deep in the substance of the lobe.

The high incidence of lateral sinus thrombosis and labyrinthitis, as precursors to cerebellar abscess, is emphasized. This should make the clinician watchful. When either a lateral sinus thrombosis or labyrinthitis does not clear up with appropriate treatment, a possibility of cerebellar abscess formation should be kept in mind.

It is my belief that cerebellar exploration should be made through a clean field, rather than by way of the mastoid wound. A wide exposure is not necessary and is contraindicated. Care should be taken not to open the large, neighboring subarachnoid spaces, as the danger of spreading meningitis would thereby be greatly increased. It has been my custom to drain cerebellar abscesses through a catheter, the abscess having first been located by an exploring ventricle needle. The catheter is then firmly anchored to the dura, fascia, and scalp with silk; and, secondarily, fortified by a safety-pin anchored to the scalp with adhesive tape. The drain is undisturbed for six weeks, and then gradually shortened each week for the next six weeks.

Generally speaking, cerebellar abscesses are somewhat less favorable for drainage than cerebral abscesses. The nature of the anatomy and greater inaccessibility of the cerebellum accounts for this. Many of these patients have secondary internal hydrocephalus, are often greatly dehydrated, and are subject to acidosis from repeated vomiting. Most of the cerebellar abscesses which have come to my attention have been in children.



RUPERT B. RANEY, M.D. (727 West Seventh Street, Los Angeles).—After an infection crosses the thin barrier (dura mater) separating the fields of otology and neurology, the burden of responsibility falls upon the neurologist and, in a few cases, upon the neurosurgeon. It is, therefore, obvious that the routes of extension, which have been most ably described by the authors, should be familiar to all concerned. If the otologists felt as keenly about the subject as the authors no doubt do, and were more conscious of the ever present dangers of lingering infection about the middle ear and mastoid cells, regardless of how trivial, and of the open doors to the subdural space constantly inviting, I am sure there would be less local palliative treatment and more radical handling of the disease.

When an infection extends beyond the dura, one or all of three things may develop: (1) meningitis, (2) encephalitis or (3) abscess formation. If the latter occurs, the neurosurgeon must meet the situation. Many operative procedures have been designed, but in most instances they have met with failure beyond hope or expectation. In the latter part of the nineteenth century, Macewen reported a simple method of drainage with decalcified chicken bone, having met, beyond doubt, with greater success than any other surgeon, and his technique was applicable to an abscess in any location. Cushing recommended enucleation in certain well-encapsulated forms, and this method is still practiced with success in well-selected cases by Horrax, Bailey, and others. Cahill is exceedingly enthusiastic over decortication of the outer wall and allowing herniation. It is evident from his reports that large, well-encapsulated

superficial abscesses made up the greater amount of his material. Coleman strongly advised the simple catheter method. Adson recommends opening of the capsule and packing with iodoform gauze. Most reports on radical treatment have dealt with a very desirable form of well-encapsulated superficial abscess. Formerly we used the catheter method, but since the abscess was decompressed to some extent on location with a ventricle needle, and because it was our belief that reinsertion of a catheter indented the capsule and opened up new avenues for the spread of infection, we discontinued this method. More recently we have been using a goose quill with most gratifying results. It affords better drainage, more satisfactory scalp fixation, and obviates removal and contamination, as well as decompression and greater trauma, produced by any other method.

From the foregoing statements it is clear that complications secondary to otitis media and mastoid disease lead to an exceedingly grave situation; and a better understanding of the pathogenesis, in which the authors' contribution plays no little part, should lead to prevention rather than treatment in an increasingly higher percentage of instances.



FRANK E. DETLING, M.D. (500 South Lucas Avenue, Los Angeles).—The courage of the authors to delve into 15,000 autopsies and classify the findings scientifically is to be praised, for we know that it meant the expenditure of much time and energy. The paths of infection, as described by them, coincide with the findings as generally accepted by most of the other investigators.

In the remarks about the petrous tip being a possible source of brain abscess, the authors state that they did not believe that infection in the petrous tip could produce an abscess of the brain, and that they did not know of a single case where a petrous infection caused such an abscess. In a symposium before the American Otological Society at Toronto in 1935, Doctor Seydell, on the subject of petrositis, reviewed the literature of cases reported during the year of 1934. He collected forty-one petrositis cases for that year, three of which developed brain abscesses, all of the cerebellar type. Doctor Eagleton reported a case of cerebellar abscess following a petrositis.

As the authors remarked, the line of demarcation between the various specialties is at times difficult to define, only the thin dura separating the brain surgeon from the aural surgeon.

In the authors' report of twenty-two cases of cerebellar abscesses, twenty-one resulted from otitic infection; hence, it is at all times difficult to know just where the work of one specialty stops and the other begins. As a whole I am convinced that the brain surgeon is in a better position to manage most cases of brain abscess, his expert knowledge and experience being needed to diagnose and localize the abscess; but there are also quite a number of brain abscess cases where the abscess is so superficial and close to the mastoid area that the aural surgeon is often justified, and he would be quite negligent in his professional duties if he did not open the very evident abscess. At times he could not get away from inserting the proper drain, as the abscess connects directly with the mastoid field. In this particular type of brain abscess, nature has walled off the surrounding meninges and brain tissue, and there cannot possibly be any danger of spreading the infection.

In these cases that have to be explored to locate the abscess there may be some justice in the argument that it is better to explore through a clean field; but much the same criticism can be charged to the brain surgeon, that of draining a brain abscess through an uninfected field, causing a possible encephalitis and meningitis. Both of these theories of spreading infection are possible, but highly improbable.

That practically all cerebellar abscesses are secondary to otitic infection clearly show the very close association of these two specialties in this particular field and shows us the necessity and desirability of closely coöperating, and in that way serving the patient in the best possible manner.

THE LURE OF MEDICAL HISTORY†

JOHN R. HAYNES, M.D.

MEMBER OF LOS ANGELES COUNTY MEDICAL
ASSOCIATION: CELEBRATES HIS EIGHTY-
FOURTH BIRTHDAY

DR. JOHN R. HAYNES, still an active member of the Los Angeles County Medical Association, recently celebrated his eighty-fourth birthday. Because of the important civic position which he has held as president of the Los Angeles Board of Water and Power Commissioners (the power system is the largest municipal electric plant, and the water the second largest municipal water supply system in the United States) his eighty-fourth birthday was commented on in the public press.

For the information of readers, some biographical and other data are appended concerning this California physician, whose career in civic work, during a later period, parallels somewhat the achievements of another even older member of the Los Angeles County Medical Association, Dr. Joseph P. Widney, concerning whom special mention was made in this and previous issues.*

Quotations follow:

From the Los Angeles *Herald-Express*:

A permanent partnership between employer and employe.
A complete dissolution of both political parties of today
and organization of two new parties, Liberals and Conservatives.

Complete ownership of all public utilities.

Downfall of all dictatorships.

These were the predictions for the next fifty years made by Dr. John R. Haynes, "grand old man of municipal ownership," on the occasion of the celebration of his eighty-fourth birthday.

For more than fifty years Doctor Haynes has been an outstanding civic leader in this city, and scores of representatives of civic bodies joined with him in the celebration yesterday at his home, 2324 South Figueroa Street. . .

Doctor Haynes, President of the Board of Water and Power Commissioners, of which he has been a member since 1921, is a strong advocate of the Civil Service merit system and was a Civil Service commissioner for twelve years. He is widely known for his civic activities and has been termed "the father of the initiative, the recall, and the referendum."

Los Angeles was the first United States city to incorporate in its organic law provisions for recall of public officers, and Doctor Haynes is credited with being responsible for the act. Starting in 1900 he served on every board of freeholders that has drafted city charters under which the municipality has operated. He also is a regent of the University of California. . .

From the Los Angeles *Times*:

"I'm forgetting my birthdays now," said Dr. John R. Haynes yesterday.

But he will be eighty-four years old today. He is hale and hearty, in excellent health, and serving his fellow citizens most valuably as president of the Los Angeles Board and Power Commissioners.

"The best thing of the year for me," said Doctor Haynes, "was our great achievement in finally purchasing the electrical system of the Los Angeles Gas and Electric Corporation."

†A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of CALIFORNIA AND WESTERN MEDICINE. The column is one of the regular features of the Miscellaneous department, and its page number will be found on the front cover.

* See page 2 (editorial).



JOHN R. HAYNES, M.D.

From the Los Angeles *Examiner*:

Dr. John R. Haynes, the "grand old man of municipal ownership" in Los Angeles, blew out the candles on his birthday cake in the quiet parlor of his Figueroa Street home yesterday and settled back in his chair to talk of his fifty years in the city and of things to come in the next fifty years.

He was eighty-four years old. During the last half-century, as a liberal whose faith would not fail, he had served his city, his state, and his country; his creed, democracy, and his cause, municipal ownership. Since 1921 he had served as a member of the Water and Power Commission. . .

The achievement Doctor Haynes finds most pride in was the writing into the California Constitution of the initiative, referendum, and recall, California being the first state to adopt these measures, which were considered ultra-liberal at the time of their proposal.

Excerpts from a biographical sketch in "The Medical Profession of Southern California, 1910:

HAYNES, John Randolph, Los Angeles, California. Born at Fairmont Springs, Pennsylvania, June 13, 1853; of English-American descent. Attended the University of Pennsylvania, receiving the degree of M.D. in 1874. Came to California in 1887. In private practice in Philadelphia, 1874-1887; at Los Angeles since that time. Member of the Los Angeles Civil Service Commission for six years and president of the Board for two years. Associate Professor of Gynecology, College of Medicine, University of Southern California, 1889-1891. Member of the Los Angeles County Medical Association, the Medical Society of the State of California, and the American Medical Association. President of the Direct Legislation League of California and of the Severance Club and Economic Club of Los Angeles. Member of the California University and Sunset Clubs of Los

Angeles, the Golf Club of San Francisco and of the National Liberal Club of London, England. Member of the California Association of the Sons of the Revolution and of the California Society of Colonial Wars. Member of the Child Labor Committee of different organizations. Has written papers on medical and surgical subjects. Married Dora Fellows, March 14, 1882.

THE MEDICINE OF THE ANCIENT JEWS

By HYMAN MILLER, M.D.
Los Angeles

THE dawn of Jewish history reveals a culture different from other cultures by its singular monotheistic religious philosophy. Knowing, as we do, that the roots of all early medicine are inextricably interwoven with the foundations of primitive religions, and that they have become separated only in our comparatively recent scientific period, it is strange that this new religion did not give rise to a characteristically Jewish medicine. Still more strange is it that, with the development of this monotheistic Jehovah cult and its clear emphasis on the first commandment, "I, the Lord, am your God, you must have no other gods beside me," the Jews, accepting Jehovah, and Jehovah alone as the Physician of their souls, did not retain Him as the Physician of their bodies. Paradoxical as it may be, the fact remains that the early Jews were monotheistic in their religion and pantheistic in their medicine. And this, despite the explicit interdiction in Leviticus, "Do not turn to medicine or magicians. If there is a man or woman who is a medium or magician, he or she must be stoned to death!" But perhaps this ordinance was only meant, after all, to guard the professional mysteries of the theologians.

THE BIBLE, THE TALMUD AND THE KABBALAH

What we know of early Jewish medicine is to be found in such documents as the Bible, the Talmud and the Kabbalah. Each of these shows that the medicine practiced must have differed but little in its essentials from that practiced by all early peoples. There is the usual admixture of primitive and folk medicine with religio-medical modifications and elaborations. The earliest document, the Bible, appears to approach scientific medicine more closely in its implications than either of the later documents, for in Leviticus are laid down laws of social and personal hygiene which even yet seem rational and founded on observed and well-interpreted facts. If anywhere, it is in these laws of hygiene that a uniquely Jewish medicine appears. In the Talmud the concern with medical matters occurs merely incidental to the attempts to interpret the law. In other words, their discussion was merely an exercise in ecclesiastical dialectics, and in no way related to the scientific attitude exhibited by such observers as Galen and Hippocrates. The Kabbalah is so permeated by mysticism, magic, and devil worship that its interest as a medical document is only in

its confirmation of what will be said with regard to these essentials of early medicine.

To relate what medical, surgical, and pathologic observations are enumerated in these books is merely to list a set of quotations of rather doubtful significance for our purpose. For instance, to know that these ancients were acquainted with amputations, fractures, dislocations, cesarean section, trephining, hemophilia, leprosy, diphtheria, and skin diseases, and with the appearance of certain organs in health and disease, is merely to comment on the fact that the early Jews had eyes and could see. Of greater significance, as regards our interest, concerns what they did to prevent and cure disease, for only from this can we obtain some idea as to their concept of disease.

THE PROFESSIONAL PHYSICIANS AMONG THE ANCIENT JEWS

There were professional physicians among the ancient Jews; physicians of the body, yet not religious men. Of them we, unfortunately, know but little. In Genesis it is said that Joseph "commanded his servants, the physicians, to embalm his father." And in Chronicles it is said that King Asa consulted physicians instead of the Lord, and "slept with his fathers for his pains." A more pleasant outcome being desirable and numerous prophets being available, miracles are much more commonly mentioned in the Bible than testimonials to the servant-physician.

THE "UNTOUCHABLE"

The high priests were the important health officers, and to them was given the duty of enforcing the hygienic laws laid down in Leviticus. It will be of interest to examine these laws, not in the light of modern science but of what we now know relating to their probable origin. The laws concerning isolation and quarantine, personal cleanliness, and foods, have long excited admiration and wonder, not to say pride in the far-seeing sagacity of the ancient religious leaders; in fact, some enthusiasts have gone so far as to ascribe a profound knowledge of bacteriology and Darwinism to the prophets. Despite such enthusiasm, however, there is some question as to whether these laws were the result of scientific reasoning or were more closely related to the taboos of other primitive and perhaps not so primitive peoples. It must be pointed out that what was holy was untouchable (tabooed). As time went on, the two ideas became confused in the minds of the people, and what was untouchable became unclean. From an examination of Biblical laws of hygiene it is difficult to learn whether uncleanness or untouchableness necessarily meant something physically harmful or something sanctified. This is well brought out in Frazer's¹ discussion of the well-known proscription against eating the flesh of the pig.

"The pig ranked as a sacred animal among the Syrians. At the great religious metropolis pigs were neither sacrificed nor eaten; if a man touched a pig he was unclean. Some people said this was because the pigs were unclean, others said it was

because the pigs were sacred. This difference of opinion points to a hazy state of religious thought in which the ideas of sanctity and uncleanness are not yet sharply distinguished, both being blent in a sort of vaporous solution to which we give the name of taboo. The Greeks could not decide whether the Jews worshiped swine or abominated them. On the one hand, they might not eat swine; but, on the other hand, they might not kill them. And if the former rule speaks for uncleanness, the latter speaks still more strongly for the sanctity of the animal." "Down to the time of Isaiah some of the Jews used to meet secretly in gardens to eat the flesh of swine and mice as a religious rite. Perhaps all so-called unclean animals were originally sacred; the reason for not eating them was that they were divine. The idea of uncleanness was further associated with sanctity by the general belief that eating of sacred animals, except during religious ceremonial, caused various diseases. It was a common belief that the effect of contact with a sacred object must be removed by washing before a man was free to mingle with his fellows." Thus, Jews wash their hands after reading the sacred scriptures, and before coming forth from the tabernacle after the sin-offering the high priest had to wash himself and put off the garments which he had worn in the holy place. It is obvious that what was sacred was also dangerous. As further evidence of the confusion between sacred and clean, and profane and unclean, is the frequent interchanging of the sense of these words by Moses as recorded in Leviticus.

THE ATTITUDE TOWARD BLOOD

The attitude toward blood further emphasizes this lack of distinction. Thus, in Leviticus, "If anyone belonging to the house of Israel eats any blood, against the person who eats blood I will set my face and will cut him off from his people, for the life of the creature is in the blood." And then we find in the same book that a woman is unclean during her menses and after childbirth, although only for one week after the birth of a boy and as a concession to a masculine-minded era, for two weeks after the birth of a girl. We must, therefore, conclude that this uncleanness arises from some such evolution of thought as this: that blood contains the soul; the soul is sacred; what is sacred is untouchable; what is untouchable is unclean; ergo, a bleeding woman is unclean. It is on this type of reasoning that many religious rites, with apparently rational hygienic foundations, are based.

CIRCUMCISION

Another type of apparently rational hygienic law, a product of purely fortuitous circumstance, is the rite of circumcision. There is perhaps no Jewish rite whose origin is seemingly so inspired by a feeling for personal hygiene on the part of the early fathers. And yet, its origin is undoubtedly not Jewish, for it was and still is practiced among the most primitive of peoples, being associated with the symbolic worship of fertility and the maturation of the sexes. The association with

sex worship is obvious, sex orgies forming part of the ritual marking the growth to manhood of the adolescent. In many tribes, this is carried on in a wholesale manner, taking the place of our more enlightened modern confirmations. The maturing of youth furnishes the motive among some primitive peoples for making the rite of circumcision a means of trying the stamina of its young men before admitting them to equality with their elders. In its extremest form we have that type of circumcision which includes a flaying of the pubes, groin, penis, and scrotum as practiced by a certain tribe in Africa, described by Burton.² "The candidate, usually from ten to twelve years old, is placed upon raised ground, holding in his right hand a spear whose point shows every tremor of the nerves. The priest first makes a shallow cut, severing only the skin across the belly immediately below the navel, and a similar incision down each groin. Then he tears off the skin from the transverse cut downward and flays the testicle and penis, ending with amputation of the foreskin." Thus we arrive at a grotesque and horrible religious rite, developing from a procedure which probably began as a mode of diminishing sensibility and prolonging the pleasures of coitus, a not unusual genesis for religious ceremonials.

So far as the Jews were concerned, circumcision became a sign of alliance between the Creator and the Chosen People. Only during the Desert Wanderings was circumcision suspended, being resumed by Joshua, who, having forty years of preputial growth to harvest, is said to have cropped some two tons of foreskins. This wholesale garner is what probably led to circumcising of enemies, prepuces becoming trophies of victory just as scalps were trophies among the American Indians. It is said that the victims who survived this operation, as also Apostate Jews, found means of successfully stretching the amputated covering to somewhere near the modest length needed to differentiate them from professing Jews. Other aspects of circumcision as a religious rite or hygienic measure might be discussed, but enough has been told to make us a bit modest in judging the scientific genius of the ancient spiritual leaders.

TREATMENT OF DISEASE

When we come to the treatment of disease as practiced among the Jews, we are more than ever impressed with the influence of early primitive magic, mysticism and devil worship upon the medicine of that time. It must be remembered that among the ancients, disease was usually considered an evidence of God's wrath. It is, therefore, logical, as we find throughout the Bible, that disease should frequently have been treated by prayer, placation and cajolry, by burnt offerings and sacrifices. Fetish worship—that is, worship of symbols—was common, and we can recall what anguish the "graven images" gave to all the prophets from Moses down. In view of the fact that this was but a manifestation of an almost instinctive belief among all primitive peoples, it is no wonder that the long-laboring prophets had so much difficulty. Shamanism—the belief in a

Great Spirit accompanied, however, by many lesser spirits—was universal. In many instances it was these lesser spirits who were held responsible for disease and misfortune, and to placate them their images were set up, and these being confused with reality the images themselves were worshiped, and burnt offerings and sacrifices and bribes made to them. It is not strange, then, that the Jews did not readily overcome their fear of the many baleful spirits about them.

Aside from attempts to placate and exorcise evil spirits, treatment by sympathetic magic and psychotherapy, and autosuggestion were resorted to. From these latter we still have a certain heritage in Christian Science and Jewish Science. Talmudic references to mystical-magical-religious medicine (sympathetic magic) are numerous. Incantations are frequently used. To get rid of boils, say "Bazbaziah, masmasiah, cascasiah, sharlai, armalai." Such Jewish abracadabras are common, and many of the proverbs were used for similar purposes.

To ward off the "evil eye," amulets were worn; and this development of a religious rite from a magical source will perhaps be best brought out by tracing the origin of the wearing of tephillin or phylacteries. Tephillin were evolved from the old amulets worn by the Babylonians and, being adopted by the Jews, became, as time went on, first an evidence of Jewish nobility and later a religious symbol. In the olden days tephillin used to be worn both in and out of doors, which is rational enough in view of the fact that, in order to ward off evil, the tephillin must be worn constantly and exposed to view. The talmudic rabbis, wishing to destroy the more or less idolistic implications of this symbol (the wearing of which had gradually assumed a definitely religious significance), and yet having to overcome the express directions in the Bible which state that the tephillin should be "to thee a sign," changed this to read: "to be a sign to thee, and not to others," and, as a result, tephillin became a sign to be worn in the privacy of the home. What has been said of the tephillin may also be said of the mezuzah (door-post amulet) and the tsitsis (sacred fringes).

Another example of sympathetic magic applied to healing is the use of numerology, based on a belief in the mystic properties of numbers. Thus, for the treatment of tertian fever, "It is recommended that seven small grapes, from seven different vines, seven threads from seven different webs, and seven nails from seven different bridges, and seven quantities of dust from seven different door holes, seven grains of caraway seeds, and seven hairs from the under jaw of an old dog, be put, with a papyrus fiber, in the hollow in the front of the neck."

The medicine of the Jews relied greatly, as in all folk medicine, on the use of herbs. Although at times it would appear that certain keen observers among the earliest practitioners actually stumbled on specific and efficacious remedies, we must remember that herb treatment was directed against the evil spirit which had entered the body of the sick. Each herb was supposed to be en-

dowed with one or more of the attributes of the many spirits hovering about and, following the Shamanistic reasoning of "like cures like," these herbs were administered to drive out the evil spirits from the body. In much the same manner we have the application of Drekapothek, or the use of obnoxious and disgusting matter as medicines. Thus, the Talmud says, "Whosoever suffers from mouth disease may have dung administered to him on the Sabbath."

EXAMPLES OF SYMPATHETIC MAGIC

Perhaps the best exposition of the many phases of sympathetic magic is found in the following example of the treatment of leprosy as given in Leviticus: "Bring two birds. Kill one over fresh water. Take the live bird, with cedar wood, scarlet string, hyssop, dip them and the live bird in the blood of the killed bird and sprinkle it seven times upon the one who is to be cleansed of leprosy, and then set the live bird free in the open country. Then the leper makes a sacrifice to God (guilt offering) and the priest makes a sin offering in atonement." Keeping in mind the principles of sympathetic magic, this mystical operation becomes logical and clear, for there we have the fresh water washing away the sin (*i. e.*, the disease), the live bird represents health, the cedar wood the green vitality of life, the scarlet string the redness of soul-containing blood, the hyssop a strength-giving herb, the mystically favorable number seven, and the live bird set free as the scapegoat, taking on all the sins and evils of the afflicted one. Then the guilt-offering to placate God and the sin-offering to repay Him for His trouble.

IN CONCLUSION

All in all, therefore, the medicine of the ancient Jews differed but little from that of their predecessors and neighbors, nor do we find any explanation of the persistence of its pantheistic character after the firm establishment of a monotheistic religion. Yet we are impressed by the seeming purposefulness of many of the inspired religio-medical laws which so nicely dovetail into our present concepts of the prophylaxis of disease.

672 South Westlake Avenue.

REFERENCES

1. Fraser, Robert: *The Golden Bough*.
2. Burton, Richard: *The Supplemental Arabian Nights*.

FITCH C. E. MATTISON, M.D.
1861-1932

DEDICATION OF A BRONZE PLAQUE IN LIBRARY OF
LOS ANGELES COUNTY MEDICAL ASSOCIATION

ON Thursday evening, May 13, a bronze bas-relief plaque of the late Dr. Fitch C. E. Mattison, President of the California Medical Association in 1913, was unveiled in the headquarters of the Los Angeles County Medical Association.

The program of the evening was presented under the auspices of the Certified Milk Commission of the Los Angeles County Medical Association, which was established in 1906 by a committee consisting of the late Dr. Fitch C. E. Mattison, the



Bronze bas-relief plaque of the late Fitch C. E. Mattison: Unveiled and placed in the library of the Los Angeles County Medical Association on May 13, 1937

late Dr. Stanley P. Black, one-time professor of pathology of the College of Medicine of the University of Southern California, and the late Luther M. Powers, for a long period health officer of Los Angeles, and Dr. George H. Kress. Doctor Mattison and Doctor Kress officiated, respectively, as chairman and secretary of the Certified Milk Commission for more than twenty-five years, and this Certified Milk Commission has donated to the Los Angeles County Medical Association for certain purposes, moneys to the amount of some \$20,000.

The Board of Trustees of the Los Angeles County Medical Association, through Dr. Donald C. Frick, Chairman, presented the plaque to the Library Committee, of which Dr. George Dock is chairman.

The plaque was then unveiled by Doctor Mattison's daughter, Mrs. Bess M. Behr. The main address of the evening was by Paul Popenoe, Ph.D., whose topic was, "Perpetuation of the Traditions of Medicine." Other talks were given by Miss Maud Daggett, the sculptress of the plaque; by Dr. George H. Kress, who spoke of the early days and experiences of the Certified Milk Commission; by Dr. Leroy B. Sherry, on "Pasadena's Tribute to a Beloved Son," and by Dr. Harlan Shoemaker, who referred to the great services which the Certified Milk Commission had rendered to the citizens of Southern California.

CLINICAL NOTES AND CASE REPORTS

NORMAL PREGNANCIES AND DELIVERIES IN BICORNATE UTERI*

By M. G. BEAVER, M.D.

Redlands

AND

K. H. ABBOTT, M.D.

Ontario

ALTHOUGH bicornate uteri have been known to exist for several centuries, it was not until a few decades ago that interest was aroused in the occurrence of pregnancy in these malformed uteri. It was Mauriceau and Vassal¹ who, in 1669, recorded the first case of pregnancy in a rudimentary horn of a bicornate uterus. It was not until the beginning of the twentieth century, however, that interest in this condition again came to light, although occasional cases were reported before this. An excellent review of the subject was made by Van der Velde² in 1915, and in 1922 Miller³ collected fifty-four cases of uterus didelphys. In this series there were sixty-seven pregnancies, of which 61 per cent went to term. His studies included only those cases of separate uterus and cervix, and not the bicornate types (uterus bicornis, unicollis, septus, etc.) In reviewing the literature from 1922 to the present writing (July, 1936), we have found reports of 246 cases of malformations of the uterus, including double uterus and cervix (uterus didelphys), double fundus and one cervix, and uteri with rudimentary horns. There are, no doubt, others which we have missed.[†] Due to the incompleteness of many of the reports, it was not possible accurately to determine the number of pregnancies which occurred or the percentage of which went to term. However, it did appear that the number of pregnancies and percentage of these that went to term would be about the same as reported by Miller; yet it is possible there may have been a larger per cent of spontaneous abortions in this series.

From the foregoing it is evident that pregnancy in bicornate uteri is not rare; on the contrary, every physician doing a gynecologic and obstetrical practice must keep it in mind in every patient he sees. It is because of this and of our blunders in two such cases that we here present two cases of bicornate uteri.

REPORT OF CASES

CASE 1.—Mrs. M. T., a Mexican, age twenty-three years, entered the San Bernardino County Charity Hospital on November 12, 1935, complaining of intermittent

* From the department of surgery of the San Bernardino County Charity Hospital, San Bernardino.

¹ Mauriceau and Vassal (1669): Quoted by Delée, Joseph B. *The Principles and Practice of Obstetrics*, p. 560, 1933. W. B. Saunders Company, Philadelphia.

² Van der Velde, *Geburtsstörungen durch: Entwicklungsfehler der Gebärmutter*, Monatschr. f. Geburtsch. u. Gynäk. Berl. 42: 307-321, 1915.

³ Miller: *Clinical Aspects of Uterus Didelphys*, Am. J. Obst. and Gynec., 4: 398-408, St. Louis, 1922.

[†] The literature has become so voluminous and cumbersome we have not attempted to include a complete bibliography in this contribution.

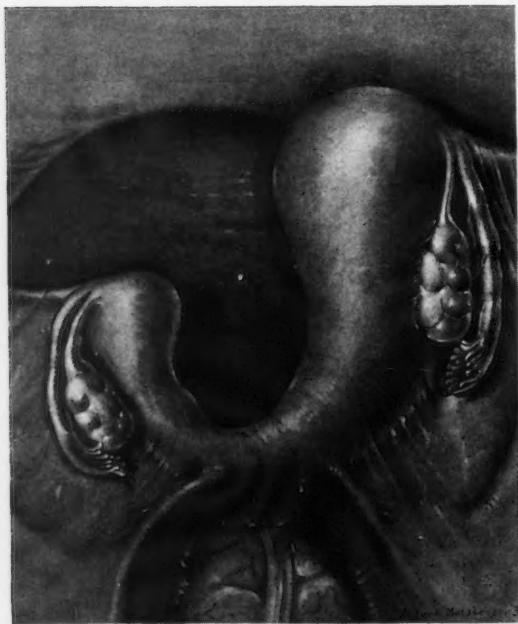


Fig. 1.—Drawing of bicornate uterus (Case 1).

vaginal bleeding, beginning ten days previous, when she passed what she thought was a fetus. Her last period was normal on September 25, 1935. She had had frequency, urgency, and burning on urination six weeks prior to this, with a persistent, moderate vaginal discharge since then. She had given birth to three children, of six, four, and three years, respectively, who are now living and well. Each delivery was normal, and the siblings weighed from six to seven and one-half pounds at birth. Examination of the patient revealed a well-developed Mexican female. There was no vaginal bleeding, but there was a tender, somewhat fluctuant mass, measuring about 8 by 4 by 3 centimeters, in the right adnexal region. The fundus of the uterus was palpable just to the left of the midline; it was about normal in size. Because of the presence of a mass, together with a mild leukocytosis and elevated temperature and pulse rate, a diagnosis of tubo-ovarian abscess was made. On November 22, 1935, a laparotomy was performed and a bicornate uterus was found. The two fundi were united at the cervix, but were otherwise separate. The right fundus measured about 11 centimeters from its fusion with its mate at the cervix to the top, and was about 7 centimeters wide at its greatest diameter. This uterus was the mass we had mistaken for a tubo-ovarian abscess, and was obviously subinvolved. The other corpus was small and of nearly normal size, measuring 5 by 3 by 2½ centimeters. On the lateral aspect of each were broad and round ligaments, fallopian tubes, and ovaries. The round ligament on the right was about three or four times the diameter of that on the left, the latter of which was approximately of average normal size. The space between the fundi received a portion of the urinary bladder. The patient was sterilized at her request, and the abdomen was closed. She had an uneventful post-operative recovery. Diagnosis: Bicornate uterus with normal adnexa and incomplete involution of the right corpus following a complete abortion.

CASE 2.—Mrs. M. R., age thirty-one, entered the San Bernardino County Charity Hospital on January 12, 1936, complaining of pain of ten to twelve years' duration in the left lower quadrant, but much worse for two weeks, and accompanied by moderate vaginal bleeding. Prior to this her periods had been regular and the patient was sure she was not pregnant. Her menarche was at the age of thirteen years, with subsequent and normal periods except for an occasional dysmenorrhea. She has one living child,

a thirteen-year-old girl who apparently is normal. Pelvic examination revealed only mild bleeding from the uterus, with a "sense of fullness in the left adnexal region with bilateral tenderness." It was thought that she might have either an ectopic pregnancy or a pelvic cellulitis. A laparotomy was performed on January 15, at which time a ruptured ectopic pregnancy was found in the left fallopian tube. The uterus was bicornate, the one on the left being a little larger than the normal nonpregnant uterus with only one tube. Blood-clots surrounded the distended tube and hemorrhagic ovary. The tube contained the products of conception of about a six weeks' gestation. The corpus on the right measured about 3 centimeters in its greatest transverse and anteroposterior diameters by 6 centimeters long. On the anterosuperior aspect of it were two pieces of what appeared to be ovarian tissue, the upper one measuring about 1.5 by 1 by 1 centimeter and the lower one about 1 centimeter in diameter. There was an apparently normal, average-size ovary on the right side, lying in the fossa ovarica. The fallopian tube on the right side appeared about average size and of normal consistency. These two corpi joined at a common cervix, the latter being about 2.5 centimeters long. The left tube and ovary were removed, and the right tube was crushed and ligated. The patient had an uneventful recovery, and has had no return of her pelvic complaints. Diagnosis: Bicornate uterus and ruptured left ectopic tubal gestation.

COMMENT

Our first case represents an easy mistake to make. Where there is a suggestive history of gonorrhea followed by menorrhagia, and in a pelvic examination a mass is felt in one adnexal region, one is prone to jump to the easier and more common diagnosis of a tubo-ovarian pathologic condition. However, it is of interest to note that this patient had had three normal pregnancies with spontaneous deliveries at term. The course of the second case is a fairly common one in such anomalies. Ectopic pregnancy, with subsequent perforation and hemorrhage, has been reported over forty times in the 246 cases we have reviewed.

SUMMARY

Two cases of bicornate uteri verified by laparotomy in which pregnancies and spontaneous deliveries have occurred. In the first case a spontaneous abortion had occurred, and in the second an ectopic tubal gestation had ruptured.

The literature has been briefly reviewed and 246 cases have been noted since 1922.

Wassermann Fastness.—The term "Wassermann fastness" has become popular because it apparently is an easy means of explaining to a patient why the blood test remains positive, at the same time being consoling to the physician. This is an unfortunate situation, because a Wassermann fastness is not a diagnosis, but merely an accumulation of serologic reports.

The significant point about Wassermann fastness is that it may occur in any manifestation of syphilis, and it may have much significance or it may be of no concern at all. For example, Wassermann fastness in a patient with early syphilis who has been well treated suggests that there is an active focus of syphilis somewhere, in either the nervous or the cardiovascular system, and that effort should be made to demonstrate it and treat it accordingly. Likewise, a persistently positive Wassermann reaction in association with a positive spinal fluid is indicative of a resistant type of infection in the nervous system. On the other hand, if a diagnosis of latency is warranted, and is confirmed by repeated examinations during the prolonged treatment course, may have no significance. The positive test does not necessarily mean that the syphilis is active or that the patient is infectious.—Queries, *Journal of the American Medical Association*.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions of subjects for discussions invited.

DEAFNESS—A SOCIAL, ECONOMIC, AND MEDICAL PROBLEM

I. DIAGNOSIS

ISAAC H. JONES, M.D. (1930 Wilshire Boulevard, Los Angeles), and VERN O. KNUDSEN, Ph.D. (Department of Physics, University of California at Los Angeles).—We have been requested to discuss the problem of diagnosis. It is now possible to make a precise diagnosis of deafness. The instruments and methods are available—and yet very few use them. It is freely admitted that a careful study of a hard-of-hearing patient should include the vestibular tests and audiometric tests in a sound-proof booth. Yet there are many otolaryngologists who do not even possess a turning-chair; some at last are securing audiometers; but sound-proof booths, without which any hearing test is woefully inadequate, are almost unknown.

As so often in the past, we will eventually be led into better ways of conducting our own work, and by the nonmedical people. In many branches of medicine we have only too often followed them and not led them. If these nonmedical people give better service—although in a dangerously limited field—the hard-of-hearing patients will naturally go to them. They pay their money and “get what they want”; but certainly not what is best for them—a real diagnosis.

All of us are so full of appreciation and praise for the achievements of medicine and surgery that we feel, with Shakespeare, “When I consider this man’s art and that man’s scope—myself almost despising.” Occasionally it might be wise for us to look at the other side of the picture, and to consider only how stupid we doctors have been in the past and are today. In medicine, the achievement is real, but the stupidity is also real. To mention a few instances:

Focal Infection.—Hippocrates himself gave us a case report on focal infection: “The patient had joint trouble, which improved, following the freeing of the mouth of much disease.” Dr. Benjamin Rush, in 1805, reported several cases; for example, a woman with arthritis in the hip. He suspected that this “was excited by the pain in her tooth, which was decayed.” The removal of the tooth relieved the arthritis in the hip. He said, “I have been made happy by discovering that I have only added to the *observation of others*,” and he gave examples, such as Dr. Petit of France, who cured vertigo by tooth extraction. Doctor Rush gave this summary: “These facts, though but little attended to, should not surprise us: the most distressing general diseases are brought in by very inconsiderable inlets of morbid excitement into the system.” Perhaps the mantle of focal infection falls on the shoulders of Alfred Mantle of England, who, in

1877, gave us the etiology of rheumatism considered from a bacterial point of view. Bacteriology was in its infancy; it was scorned by almost the entire medical profession in our country. The thesis of Doctor Mantle was not well received by the medical profession in England. In fact, when most of us went to medical school we were still in the dark. It was not until 1912 that Dr. Frank Billings created the beginning of interest in focal infection. Dr. George E. Shambaugh made his memorable report on tonsils as a focus of infection in 1913.

Scientific Massage.—Similarly, we neglected scientific massage. If we had regarded ourselves as patients, we would have paid more attention to the comforts that come from all measures—from the hot-water bag up; and so, due to our neglect, there developed and flourished the osteopath, the chiropractor, and the host of drugless healers.

Neuropsychiatry.—Nowadays all of us realize that fully 50 per cent of our work is really neuropsychiatry, regardless of our specialty; but we did not learn this soon enough. So again, as a direct result of our neglect, the public has to a great extent looked to the “mental healers” of every brand and variety, including our own interesting and remarkable actress who raises the dead, raises the devil, and—raises the money.

Other Factors.—One of the writers, when a boy, always hoped that the family would send for the homeopath instead of the “allopath.” He learned that, after taking the few little sugar pills with next to nothing on them, he would get well quicker than from the strenuous medication of the “regular” doctor.

Not very long ago a doctor would decide, “I think I will be an eye specialist.” He did not know physiologic optics. Nonmedical people, not in the least trained in the diagnosis of eye conditions, did understand physiologic optics. Hence the optometrist, who has the good will of a great number of the general public. How can we expect the general public to realize the danger of having an “eye study,” limited simply to refraction?

True to form, we are again being led by non-medical people in the careful measurements of hearing defects. The writers warned, many years ago, that there would soon be a new lay technician, the “audiometrist,” analogous to the optometrist, unless otolaryngologists made precision measurements of the ears of their patients. The makers of good hearing aids are earnest and sincere; they realize that most otolaryngologists are not prepared to make precise measurements. So the laity now leads and we, as usual, will eventually follow. The ophthalmologist of the present day can prescribe eyeglasses as well as, or better than the optometrist.

But at this moment the "audiometrist" is the one who has instruments of precision which few otolaryngologists have. Recently, an internist told me that he went to see a woman who complained of abdominal distress. He noticed that she wore a hearing aid which had cost her well over \$100. He glanced at her ear and found impacted cerumen, bilateral, which had been present for many years. When he washed this out, the patient had excellent hearing; and now her hearing aid is for sale. Surely, the otolaryngologist, like the ophthalmologist, should make his own precision measurements as well as study his patient from every other angle.

Examination Methods.—Besides the vestibular tests and the use of an audiometer in the sound-proof booth, there is another test which, for the past fifteen years, we have found of value—a study of the middle-ear mechanism by an oscillator with an electric otoscope. To "see the ear hear" is not merely an attractive thought. To a great extent it is perfectly possible for us to accomplish this in clinical practice. Naturally, we cannot observe the motion of the drum membrane when exposed to sound waves. The motion is too tiny and too rapid. The ear is wonderfully sensitive. At a frequency of 1,000 cycles, a barely audible sound is heard when there is one-billionth part of atmospheric pressure in the auditory canal. At this threshold of hearing, the drum membrane moves one-billionth of an inch. For lower frequencies the excursion is somewhat larger. For an ordinary sound, such as the voice, or the average noise in the office, the drum membrane moves one-millionth of an inch, in response to one-millionth of pressure in the ear canal. Such movements we are not able to see. Again, we cannot see the drum membrane move because it moves too rapidly. The eye has detectors for only one octave—from red to violet; double the frequencies for red are sensed as violet. In the ear we have ten octaves, from twenty to twenty thousand. We cannot see such rapid movements. "How, then, can we see the ear hear?" We can at least observe the motion of the drum membrane and hammer, and to this extent we can know exactly how well this portion of the ear "can hear." An oscillator with the electric otoscope causes an alternate rarefaction and condensation. We can cause the drum membrane to move about one-hundredth of an inch; and such excursions are plainly visible. As to frequency, we can cause the membrane to move three, four, five, or any number of times per second. In this sense, we are then able to "see the ear hear." An excellent method to determine stapes fixation is as follows: If the turning and caloric tests, and the audiometric tests in the sound-proof booth, reveal a normal internal ear and eighth nerve, and the deafness is proved to be due to a conductive defect, and the oscillator with the electric otoscope shows normal texture, and normal mobility of the drum membrane and hammer-handle, then we can conclude that there is only one diagnosis, one definite lesion—stapes fixation.

All of us have often wondered why ophthalmology has always led otology in precision of diagnosis. The reason is that instruments have been

available for the study of physiologic optics. Physiologic acoustics had to wait for the advent of the *vacuum tube*. The older tests of hearing which we have used in the past have been based on valid principles; but they have been limited in accuracy and scope, not only in studies of the frequency range, but particularly for the purpose of prescribing hearing aids.

Again, the eye has a great advantage: we are able to look into it. As we cannot look into the ear, the problem is to determine the condition of those parts that we cannot actually see. In the past twenty-five years we have come to a better knowledge of the condition of these hidden structures. Curiously, this first came, not in auditory but in vestibular studies. We then attained a method of testing the ear by observing objective responses to ear stimulation. The turning and caloric tests enabled us to secure definite information. The vestibular tests give us objective evidence of the condition of the internal ear, free from the fallacies introduced by the patient's subjective feelings or ideas.

The next step was to put the auditory tests on a basis comparable to that of the vestibular tests. This became possible about 1915, by the discoveries of the vacuum tube and other modern electro-acoustic devices which are used so widely in telephony and radio communication. These discoveries brought in a new era for the diagnosis of hearing defects. The developments during the past twenty years have advanced audiometry to such an extent that it has now attained a dignity comparable to that attained in precision measurements of the eye.

To obtain a knowledge of the condition of the unseen parts of the ear, we needed, so to speak, an "ophthalmoscope-ophthalmometer—retinoscope" for the ear. We are now able to secure such information through the vestibular tests, and through the use of an audiometer in a sound-proof booth. During the early period of the development of audiometry about fourteen years ago, the writers, among others, drew up a list of requirements which they regarded as ideal for an audiometer. At present the American Standards Association and the American Medical Association are preparing, and are about to publish, definite standards for audiometers. This will be of service to the otolaryngologist in his selection of an audiometer.

In making hearing tests with audiometers, the hearing acuity should be determined at different frequencies, both by air conduction and by bone conduction, and the results plotted on a suitable chart. The patient also listens to the amplified voice of the examiner and states whether the voice seems distinct or confused. This is done both by air conduction and by bone conduction; the information gained is not only useful in diagnosis, but is particularly helpful in determining whether the patient hears well enough to purchase a hearing aid of either a bone conduction or an air conduction type.

Although the audiometer performs an indispensable service in making a correct diagnosis of impaired hearing, and reveals how much of an impairment is of a conductive and how much of a

perceptive nature, its greatest value probably will result from its usefulness in the prescribing of hearing aids.

Studies in the use of high quality amplification and of selective amplification are revealing not only the imperfections in existing aids of the portable type, but also the nature of the improvements which are needed in the ideal hearing aid. Recent tests made by our associates, Norman A. Watson and Ludwig Sepmeyer, have shown that persons with as little as 50 per cent of normal hearing can hear well by amplifying all frequencies up to 8,000 cycles. Hearing tests conducted by means of such an amplifier show that those who now experience difficulty in hearing with the usual portable type of aid can hear very well if the proper amount and kind of amplification are provided. It is possible to build such high quality hearing aids which will do this satisfactorily; but they are heavy, bulky, and not portable.

A great deal of attention has been given to the problem of hearing by selective amplification during the past ten years. Such experience as the writers have had with selective amplification has revealed that we are dealing with a problem of cerebration, and not merely with the physical problem of amplifying each frequency by an amount equal to the hearing loss at each frequency. This probably explains some of the statements patients have made, namely, that they hear as well with uniform amplification as they do with selective amplification. It is probable that continued use of the most appropriate type of selective amplification would bring about the cerebral adaptations required for normal auditory perceptions. Certain patients do hear better by selective amplification when they first try it.

We should not expect too much from selective amplification. The ear is so constituted that it can tolerate a large amount of distortion and yet understand speech very well. The amount of distortion introduced by the usual type of portable hearing aid is comparable with the distortion introduced by a hearing loss which is greater for some frequencies than for other frequencies. Such attempts as have been made by some manufacturers of hearing aids to control selective amplification by using different types of diaphragms in the microphones, or different types of electro-mechanical amplifiers, do not produce sufficiently large differences in the amplification to meet the requirements.

It is apparent that much remains to be done in perfecting hearing aids which will meet the requirements for each individual. Thus, it is certainly a mistake for a person who has good hearing for frequencies below 2000 cycles, and greatly impaired hearing for frequencies about 2000 cycles, to use a hearing aid which amplifies only those frequencies below 2000 cycles. Yet, this is what happens in many instances. Certain persons have nearly normal hearing for frequencies below 2000 cycles, and when such persons use the available types of portable hearing aid, they suffer from the excessive loudness. The hearing aid fails to amplify the higher frequencies and, in addition,

the overloud low frequencies actually mask the higher frequencies.

Selective amplification has promising possibilities for future developments in hearing aids. It is more than a theoretical ideal; and it is probable that with future improvements and with continued use by patients, selective amplification for each individual will be provided in the routine prescribing and constructing of hearing aids.

Summary.—Early diagnosis by precision measurements will make possible the prevention of deafness in millions of people in the future. For those already hard of hearing from fixed lesions, the prescribing of hearing aids is the highest service that the otolaryngologist can render. But the public will not know this and will not come to us, so long as we remain unprepared to meet their need.

* * *

II. TREATMENT

HAROLD A. FLETCHER, M.D. (490 Post Street, San Francisco).—The various forms and types of deafness, their causes, their diagnosis, and the resultant impairment of hearing have all been discussed in previous articles. We will now consider briefly the subject of treatment.

Treatment must necessarily and obviously be based on the diagnosis. The discovery of impaired hearing must naturally precede the diagnosis. Too much weight cannot be placed on these two factors. We are only beginning to realize how early small impairments of hearing begin to show, and that for many years the process goes on before the gross stages are noticeable. Discovered and diagnosed in these early stages a great deal can be done to stop the process and prevent disability. All pediatricians and general physicians should routinely check children's hearing; and if any suspicion of a defect is found, have careful, repeated hearing tests made, audiometric tests if possible, or simpler tests if audiometer tests are not available. Proper corrective procedures, both local and general, often simply carried out in the routine medical care which all patients deserve from their family doctor, will prevent many cases of disabling impairments of hearing in later life. If postponed until gross defects are present, it has become too late to correct. Certain impairments come quickly as the results of acute intoxications in the acute fevers, etc. These sometimes are unavoidable, leave their damage as a permanent impairment, and pass on. There is nothing to be done in the treatment of these. But a very large percentage of cases are progressive types, starting very early in life, and can only be picked up and diagnosed by observation and study over a period of years, and corrected during this time by the careful and considerate coöperation between the pediatrician or family physician, the otologist, and the parents. To allow a child to gradually become blind while under his care and not do anything about it would make any physician's conscience hurt him, and the time is nearly at hand when the deafened young adult can ask his old family doctor and friend, "Why did you let me get this way?"

The diagnosis must tell us certain things. Are we dealing with a conductive type due to faults in the canal, ear drum, middle ear and eustachian tube and small bones of the middle ear, these structures which conduct the sound waves to the inner ear physically? Or are we dealing with a perceptive type of deafness, that due to a fault in the inner ear, cochlea or auditory nerve, which is the perceiving apparatus? Is it an old process that is stationary, or is it a progressing process still going on? What damage has been done, what structures have been damaged, what is causing it?

Treatment must aim at removal of the cause, arrest of the process, and prevention of further impairment and, where possible, restoration of lost function.

Acute Inflammations.—The acute inflammatory conditions are so well known that only a word is necessary. Paracentesis in abscessed ears is always imperative. There is no longer any excuse for a physician to wait for a drum to burst, with its lacerating effect and its greater danger for permanent impairment of hearing, even though he may still feel (even if erroneously) that allowing an ear to rupture itself will not make mastoid involvement more probable. Important is to carry the case through to completion, seeing that the middle-ear discharge ceases, the drum heals, and the hearing returns to normal. As soon as the ear is dry, mild inflations through the eustachian tube are indicated to restore function, prevent adhesions, and help resolution of small elements of retained secretions.

There are many cases of acute serous catarrh with a thin serous exudate filling the middle ear following acute infections, etc., which are overlooked. These can usually readily be cleared up by a few inflations by Pollitzer's method or catheterization of the eustachian tube or, at most, a small paracentesis followed by inflation. Allowed to remain undiagnosed, the serous fluid becomes thicker and later tends to form adhesions. It may indeed remain harmless for months awaiting proper treatment.

Chronic Middle Ear Catarrh.—The more chronic types of middle ear or conductive types of impaired hearing must be discovered as mentioned previously (hearing tests and observations of the drum membrane). Pathology in the nose and throat is of greatest importance. Removal of adenoids alone in infants, adenoids and tonsils after two years or more, careful treatment and care to shorten and prevent attacks of head colds, sinus infection, allergic and other conditions affecting the upper respiratory mucous membranes and leading to congestion and obstruction of the eustachian tubes—all of these conditions must receive consideration. Mild inflations of the ears are indicated at times after these processes are cleared up, but carefully controlled with hearing tests and observation of the drums before and after treatment. These treatments should never be overdone, and are only to help restore proper ventilation and function of the middle ear following attacks where there has been obstruction and congestion of the tubes, and is done only to correct the immediate results more

rapidly and efficiently than would occur in the normal acts of swallowing and yawning, etc.

The most important form of conductive deafness is the more chronic progressing insidious form which, although influenced and made worse by the head colds, nose infections, adenoids, etc., taken up in the last paragraph, are probably not initiated by them. These so-called chronic adhesive processes of the middle ear may start from birth or even before, or any time during early life, and go on unnoticed until definite gross defects in hearing are noted. Routine hearing tests and observations of the drum only will pick these cases up. Whether Whitmaack is correct in his theory that entrance of meconium, regurgitated food, etc., at birth and shortly after initiates this process is debatable; more probable are metabolic factors. However, the pathology as he describes it and the hyperplastic process with its sclerosis and adhesive effects do exist in fact. This type forms one of the largest classes of deafness, can be diagnosed in childhood, becomes apparent in young adults, and very little can be done for it after that. Diagnosis in childhood and discovery of the causes in the individual case is the future treatment of these cases. The correction of nose and throat conditions is important, but after that the careful study of the child's hygienic, dietary, and metabolic life is of greatest importance. A real earnest endeavor to correct and build up the individual faults, particularly along dietary and vitamin and glandular lines, will probably arrest and prevent many of these incipient cases.

Treatment of the results of chronic adhesive processes may be indicated, and in some cases give excellent and lasting results, while some cases do not respond at all or are even made worse, and some patients can be temporarily improved as to hearing, tinnitus, etc., and made to hear more for a period of years. After the nose and throat have been put in healthy condition, inflation of the middle ears may be successful in improving the hearing. This may be done by catheter or by mild inflations with careful checking of results as to hearing and appearance of the drum membrane. Some cases do not show improvement until several treatments have been made, but under no condition should such treatments be persisted in if the hearing shows a decrease following several treatments. The use of various vapors, chloroform, iodine vapor, benzadrine, etc., may be of use through catheterization directly into the middle ear. Passive gentle massage of the ear drums by means of pneumatic massage through the external canals may also be tried. Diathermy over the mastoid, or by way of the external canals, may help some cases. Occasionally x-ray treatment has helped. All of these treatments probably act in improving the circulation of the middle ear, helping to absorb some of the by-products of the process. Inflations and massage probably help partly in the physical improvement and temporary restoration of impaired motility and function. Tinnitus and other aberrant sounds in these cases are also often helped by such treatments. The main thing to remember is that no treatments should be carried out over too long a

period, and results should be carefully watched. Intermittent short courses or single treatments will often help certain cases over long periods of time.

One form of conductive deafness is an entity by itself. This is otosclerosis. This is much more common than often realized. Inflation and massage, in fact almost any positive local treatment only aggravates this condition. The cause is not known, but careful general care, corrective metabolic and physiological guidance, particularly throughout a woman's menstrual life, is of great importance. A woman with otosclerosis should be frankly told that pregnancies will probably cause marked increase in deafness, and that her children may be afflicted.

Inner Ear Impairments.—The treatment of inner ear or cochlear impairments depends on early recognition of the causes, particularly such as focal infections, toxemias due to infections, syphilis, typhoid, malaria, mumps, etc.; due to drugs, quinin, alcohol, nicotin, salicylates, including aspirin, which definitely can produce inner ear degeneration; the various metabolic disorders; nephritis, arteriosclerosis; and their by-products, and exposure to noise and sound trauma. Various and many factors may be found in the individual case and these causes eliminated. The commonly used induction of labor by use of large doses of quinin is to be severely condemned—*obstetricians, please note!* It has been definitely proved that cochlear degeneration in new-born babies can be caused by this obstetrically needless drug, used to induce labor.

In inner ear impairments, as in the forms discussed above, early discovery of the progressing nerve deafness, made by hearing tests often repeated, is the hope for proper corrective treatment. Active local treatment of degenerative processes in the cochlea or nerve is unavailing and often harmful. Tinnitus may occasionally be helped by one or two inflations of the middle ear with vapors of chloroform or glacial acetic ether, or diathermy, etc., but in general local treatment is contraindicated and may be harmful. Treatment of the cause before too much damage has been done, rather than treatment of the result, is the important thing.

Mixed Forms.—Treatment of the mixed forms more or less follow the above, a careful balance check between the two forms being kept in mind. The middle ear or conductive part of a mixed form can sometimes be improved, although the cochlear damage may not be influenced.

In all forms where the prognosis for gradual impairment is bad, the study of lip reading should be begun early and conscientiously so that this aid may be mastered while the patient still hears the spoken words well.

Hearing Aids.—The improvement in mechanical electrical hearing aids has progressed rapidly in the last few years. Thousands of people who could not get along before can now hear readily with one of these. After a certain degree of deafness has occurred these aids are to be considered. No exact percentage loss of hearing can be said to indicate when one should be tried. Generally speaking, when a hearing loss of twenty decibels has occurred, a hearing device may be considered. Many people, however, have a greater loss and are far

more happy and efficient without the aid of an electrical hearing device. The individual's life, social and business, his temperament and intelligence, all are factors. Certain facts must be borne in mind. When one hears through an electrical aid he hears through a telephone receiver, and direction of sound, perspective of sound as it were, is lost. All sounds are amplified to a certain degree and are brought in through the single hearing piece. Thus, when several people are speaking, all voices come in through a one-party line and the same effect of a babble of voices and noise occurs. It is necessary to understand this annoying factor. In individual conversations, small meetings, lectures, etc., people who previously had great difficulty in holding conversation carried on by loud shouting can now hear well. Another important factor to be remembered is that people who have poor hearing over a long period have lost the sensation of many sounds in conversations, and with a hearing device they suddenly hear these missed sounds again and have to learn to interpret them again. In other words, such a person has to learn to hear again, and education and practice are necessary before they get the most use out of the device. Some patients can understand very little when first using a device, as they hear so much that they had been missing; but often, with some training, they are able to hear much more with than without the instrument.

One of the greatest criticisms of the electrical hearing device is the sales methods that have been pursued by the various sales agencies. There is a tremendous capital investment in the manufacture and distribution of these instruments. Wonderfully fine research has been done by these companies in developing them. This, unfortunately, has been almost universally reflected in the pressure sales campaigns to market these instruments. Most instruments are sold by salesmen who are paid only commissions, and who often are discharged as soon as they have exhausted their list of prospects. Thousands of unfortunate patients have had instruments forced on them by unscrupulous salesmen often by trick methods, only to find that for them that particular instrument was worthless. Little concern is shown by the agent once the instrument is paid for. Unfortunately, also, there has been a shameful lack of ethics on the part of a great many physicians and otologists in accepting or even demanding a commission from the agent.

In Conclusion.—Finally, one must remember that in the treatment of these advanced cases of impaired hearing there is a humanitarian and a psychological side that is very important. These patients need encouragement and guidance. They should not be turned aside or dropped with the statement that nothing can be done. They should be urged to take up lip reading, to try out different instruments, and be guided and protected against enthusiastic if not unscrupulous salesmen and quacks, until they get a machine worth while for them. They should, with patience and clearness and explanation, be made to understand that treatment will not help, and so be kept out of the hands of quacks and charlatans. A kindly, sympathetic,

and understanding treatment of these afflicted people is just as much a duty of the otologist and physician, as the treatment of any psychological by-products of any of the common, general, and nervous diseases.

* * *

III. RELATION TO SOCIAL WELFARE

FRANCIS L. ROGERS, M.D. (360 Junipero Avenue, Long Beach).—The otologist who today views deafness as a strictly medical problem is fifty years behind his time. One-twelfth of our entire population has impairment of hearing. This startling fact brings into the fore a public health problem of immediate and momentous importance. Furthermore, despite great advances in the diagnosis and treatment of ear diseases, surveys show that deafness is increasing. An eminent English scientist declares that, unless better means of prevention and cure are found, in three hundred years there will be no persons living who have perfect hearing.

Dr. Edwin P. Fowler, eminent research otologist, declares that 95 per cent of all cases of deafness were, at some stage, preventable or curable. The lay public may be unaware of the tragic situation above stated, but surely the otologist knows the truth. And if he is the type who says to a patient, "You are incurably deaf. I can do no more for you," he not only shows a callous disregard for the feelings of the person thus released, without hope, but admits his lack of understanding of the social and economic significance of such washing his hands of responsibility.

Who better than the otologist, keen to uphold the traditions of "the noblest profession on earth," should be able and willing to grasp the problem from the educational, social, and scientific angles, and to give his whole-hearted approval and intelligent leadership to efforts toward solution? The magnitude of the undertaking should but challenge him. And the spirit of coöperation on the part of the public should hearten his hopes of ultimate victory.

While the otologist is, and must always remain, the best and safest guide to the deafened in their quest for relief from pain and disease, he must guide them as well in search of social and economic rehabilitation. He was a *man* before he became a *specialist*.

He cannot treat his patient's ears without first reckoning with his whole body, with its physical and mental bearings upon his hearing problem. Here, to the otologist, his fundamental training in general medicine is of inestimable value. It aids him in determining the value of general symptoms, and of those localized in the ear, nose, and throat. His special and general diagnosis are both vital to the prognosis and treatment of any case he takes.

The fortunate ones benefit by care taken in time. Tragic are the cases where deafness has become incurable, which need not and should not have become so—none more tragic than the young person when it is first borne in upon him that his loss of hearing is permanent; that his whole life program must be changed; that his social and economic status must be readjusted.

It has been said that deafness is a mountain some cannot climb. Few learn to accept the handicap gracefully. Practically all to whom deafness comes go through *hell*—physically, mentally and, in most instances, economically. Here is where the wise, honest, and understanding otologist has his great opportunity to render a fine social service. He can open the door of hope.

The art of reading lips enables deafened persons to hear with the eyes. In school a young child can learn to read lips well in six months. Adults are usually less apt, but they acquire this art, and it brings them back into their world, from which deafness had cruelly shut them out.

It was a socially minded otologist, Dr. Wendell C. Phillips of New York, who, in 1909, formed from among his patients the first group for the study of lip reading. It became the first League for the Hard of Hearing in this country. Similar groups in other cities adopted the plan. In 1919, nine of the more than twenty clubs thus formed were federated into what is now called the American Society of the Hard of Hearing. Thousands of adults in 160 affiliated leagues in most of the states are thus joined together for mutual benefits. The federation is a powerful factor in the social and economic rehabilitation of all who have impairment of their hearing.

The development of electrically energized hearing aids has revolutionized methods of benefiting the hard of hearing. Improvements are perfecting these, and their increasing use is reducing their cost, which is a great blessing to users.

The outstanding diagnostic advance was the perfection of the audiometer, by use of which the hearing of forty children can be tested in half that many minutes. In California, which has thirty-five leagues, there are thirty multiple (4a) audiometers in use, owned by schools, health departments, leagues, and other civic groups. Outside of the two largest cities, more than thirty thousand pupils were given hearing tests in 1936. Communities are realizing that every child should have an audiometric test annually. It is a social and economic necessity.

In 1936 the first law requiring the testing of the sight and hearing of every school child was passed in New York. Otologists, leagues, and public-spirited citizens accomplished this. California leagues are sponsoring such a measure, but with small prospect of getting it passed, in effective form, now. An obsolete statute, generally ignored, is a part of our school law. It makes no distinction between hard-of-hearing and deaf children. It demands that such cases be reported to the principal of the School for the Deaf!

Ten states have, in 1936, laws relating to the hard of hearing. California will not long be behind in meeting an acute need, for her reputation is at stake. Hard work and a campaign of education will bring about the needed legislation in time.

Looking back to the small beginnings of the movement to combat the increase of deafness, and to make rehabilitation possible to persons with hearing deficiencies, we have cause to take heart.

The public is awake to the fact that the problem belongs to the schools and to the departments of public health in every community. Research into the causes of deafness is demanded. Detection of deafness at the earliest possible stage is the duty of parents, through their family physicians, through health centers, and later through the health agencies in the schools. Parents are learning how to train and to help children with impaired hearing. This keeps up morale, and prevents repeating grades—a costly performance, from every point of view.

Eighty per cent of the deafened pupils in our public schools are declared to be needlessly so. Only 20 per cent of the cases were such as could not have been cured if taken in time. Many pupils ordinarily classed as stupid or mentally deficient are found, by testing, to be hard of hearing, not "dumb."

The self-help, and help and encouragement to the members of the League, is one of the most remarkable results yet achieved. Normal social activities among themselves and participation in community projects for the benefit of the needy prepares the League members to take their places outside in normal ways. Ability to read lips opens the way into circles from which they voluntarily retired. Lip-reading classes grow into leagues.

Every otologist should belong to a League of the Hard of Hearing for his own good and for the good he can do the members already there.

At the annual meeting of the California Medical Association in 1934, the Eye and Ear Section appointed a committee of five to make a survey of the problem of deafness in the State. The report, submitted a year later, aroused much interest. It was continued, and its membership increased to twenty-five. These otologists found their own growing interest matched by the organizations of laymen—Parent-Teacher Associations, Boards of Education, Health Departments, civic and service clubs, and Leagues of the Hard of Hearing—in large and small communities. So the Committee reported to the Medical Association in 1936. The addition of new members places fifty otologists on the list of leaders in a drive, whose objective is to organize every county in the State, to the end that California citizens shall become "hearing conscious." Hundreds of nonmedical workers are helping in this movement. Their slogan: "End Deafness in California!"

*Counting the Sheep.**—Many people who cannot sleep make use of various mental devices to pass away the time or to suggest themselves to sleep. Indeed many times they work harder in trying to go to sleep than they work during the day in trying to make a living. Some of these helps are real helps while others are all wrong.

Saying the alphabet backward, counting to a million, enumerating the well-known sheep as they gambol o'er the hedge, and other similar procedures, are tiresome and defeat the purpose of going to bed. If you do not sleep you should by all means try to rest, for you will need the rest next day. Why not recall pleasant memories and have a good time with oneself? Of course, this applies only to those persons who have so lived that they may reasonably consider themselves a good companion for themselves. To

have some familiar experience which is lived over and over in the wee small hours when Morpheus is out on a spree is to have what is known as a "nestling thought." Cultivate one. It really is a lot of fun and can be as romantic as anyone may wish.

Many try to suggest themselves to sleep and, as a rule, succeed only in suggesting themselves wide awake. Their dialogue with themselves goes something like this:

"I'm going to go to sleep. I'm going to go to sleep. I'm going to go to sleep."

A little voice says: "You're not. You're not. You're not."

"I'm going to go to sleep. I'm going to go to sleep."

"You're kidding yourself. You're just like you always were and you won't go to sleep for two hours."

Etc., etc., etc., for a couple of hours, tiresome nerve-racking hours.

Lie still and rest, think about some pleasant experience and, above all, think of something else than sleep, insomnia, and related subjects. Every time that one flounders over on the other side the activity wakes him that much wider awake—not to mention its effect upon one's bedfellow, if he has one.

Form a habit of being moderately fatigued and sleepy before going to bed, and then go to bed to sleep.

Important Amino-Acids in Wheat Flours.—White patent flour is about as good a source of important amino-acids that the human body has to have for life and growth, as whole-wheat flour, according to investigations by Dr. Frank A. Csonka of the Bureau of Chemistry and Soils, United States Department of Agriculture.

Two important amino-acids, cystine and tryptophane, were higher in patent flour, while tyrosine and the dibasic amino-acids were higher in whole-wheat flour. Naturally, there are other factors in addition to the amino-acids, such as mineral content, vitamins, roughage, and keeping quality, all of which are important and must be considered in estimating the relative value of patent and whole-wheat flour. But Doctor Csonka was not concerned with these. He was only trying to find out how white patent flour compares with whole-wheat flour in the "important" amino-acids.

Milling both patent and whole-wheat flour from the same sample of wheat shows that the total quantity of important amino-acids in the protein of patent flour differs only slightly from the total quantity in whole-wheat flour. Proteins are made up of amino-acids which are necessary in building up the tissues of the body. Something like nine of the twenty-two or more different kinds of amino-acids are essential to life and growth. Certain of these amino-acids required by the body in building proteins and hormones have to be supplied through the diet, because the body cannot produce them.

The customary method of estimating the protein content of wheat flour is to multiply the nitrogen percentage in the flour by 5.7. This shows the difference between low and high protein flour, but gives no information as to the quality or food value of the protein in the flour. This is important because the food value of a protein depends upon whether or not it contains enough of these "indispensable" amino-acids.

Results of the investigation show that the amino-acid content of wheat may differ a great deal in different varieties. Hard wheat is higher in certain of the important amino-acids than soft wheat. And protein quality in wheat is better in varieties high in protein.

Of the three major parts of a grain of wheat—bran, germ, and endosperm—bran and germ are higher than endosperm in protein, but the endosperm from which patent flour is made constitutes such a large percentage of the wheat grain that the total amount of amino-acids in patent flour is practically the same as the total amount found in whole-wheat flour.

An intercurrent attack of measles is particularly dangerous for young children who have an active tuberculosis. During an epidemic of measles all children with a positive tuberculin reaction should be protected, regardless of whether the process is active or not.

Protection is especially important in the case of small children; in case of an active process, protection should be complete.

* By Thurman B. Rice, M.D., Professor of Bacteriology and Public Health, Indiana University School of Medicine.

CALIFORNIA MEDICAL ASSOCIATION

This department contains official notices, reports of county society proceedings and other information having to do with the State Association and its component county societies. The copy for the department is submitted by the State Association Secretary, to whom communications for this department should be sent. Rosters of State Association officers and committees and of component county societies and affiliated organizations, are printed in the front advertising section on pages 2, 4 and 6.

CALIFORNIA MEDICAL ASSOCIATION

HOWARD MORROW.....	President
WILLIAM W. ROBLEE.....	President-Elect
LOWELL S. GOIN.....	Speaker
MORTON R. GIBBONS.....	Council Chairman
FREDERICK C. WARNSHUIS.....	Secretary-Treasurer

THIS MONTH'S TOPICS *

ASSOCIATION ACTIVITIES

1. 1937 American Medical Association Meeting.
2. Atlantic City Observations.
3. What Do You Recommend?
4. Assembly Bill 1491.
5. The Nation's President Replies.
6. Legal Don'ts.

DEPARTMENT OF PUBLIC RELATIONS

1. Public Health Education.
2. Study of Alcoholism.

ASSOCIATION ACTIVITIES

1937 AMERICAN MEDICAL ASSOCIATION MEETING

A big meeting, excellent program, exceptional exhibits, commercial and scientific; a House of Delegates confronted with perplexing problems; California fellows in attendance; Irvin Abell of Kentucky, President-Elect; Junius B. Harris of California, Vice-President; San Francisco selected for the 1938 meeting place during June 13 to 17—such is the general summarization of the Atlantic City meeting of the American Medical Association.

But what is the more significant summary after a week of postmeeting reflection, a conversation today with Doctor West, and a Sunday morning of conjecture as this is being written in Chicago a few hours before commencing the return trip:

The *Journal of the American Medical Association* will disclose in the official minutes the several resolutions introduced and the reports of reference committees on more or less routine matters. Characteristically, the House of Delegates, after four years of consideration, declared a policy on birth control. Characteristically, because that legislative body has ever been disinclined to precipitous action and is most deliberative in its declarations. This observation is passing.

The most important question confronting the delegates was social medicine. This problem was raised by the New York State society delegation's resolution. Space will not permit relating the many factors and extra-professional urges that inspired, or rather schemed, its drafting and presentation. It was stated that the American Medical Association Board of Trustees desired to report on this resolution, and it was so referred. The Trustees reported back that the factors and policies involved were so important that the delegates should record the action to be taken. The resolution was then referred to the Committee on Execu-

tive Session and, after a prolonged hearing, brought in a report that contained a substitute resolution of policy and position. (See official minutes.) This was unanimously adopted.

Word was received that Senator Lewis of Illinois desired to address the delegates on the question of federal legislation. A special session of the House of Delegates was called to hear the Senator. His statement has been published.

California's delegates were active and truly representative. In due time their official report will be imparted.

ATLANTIC CITY OBSERVATIONS

One hundred and sixty-eight California fellows registered, according to official bulletin.

California's seven delegates were in attendance at every session of the House of Delegates, including two extra executive sessions. Doctors Best and Dukes were members of reference committees.

San Francisco, 1938, June 13 to 17, is the place and date for the eighty-ninth annual session. Chinese pillows were given as souvenirs to every delegate by the San Francisco Convention Bureau and the San Francisco County Medical Society. A book of views of San Francisco, with a cover the facsimile of a telegram extending a cordial invitation to meet in San Francisco, was placed in the chair of every delegate at the last session.

Dr. Robert A. Peers nominated Dr. Junius B. Harris for vice-president. No opposition. Unanimously elected. Dr. E. J. Best extended the invitation to meet in San Francisco.

Heat, thunderstorms, rainstorms—such was the weather. In 1938, delegates and fellows will appreciate the June weather on the Pacific Coast.

The scientific exhibits were most complete, and constituted a real postgraduate course. California fellows should apply early for space in the 1938 exhibit.

Two resolutions introduced by California delegates were unanimously endorsed. (See official minutes.)

President-Elect Irvin Abell of Kentucky accepted an invitation to visit California in late October. He will speak at the Secretaries' Conference, and engagements will be made for him in Los Angeles and the San Francisco Bay area. Doctor Abell has a delightful personality and is most cultured as well as being a surgeon of national renown. His acceptance speech was the very finest ever rendered before the House of Delegates in twenty-five years.

Official delegates were present from the British Medical Association, Australia Medical Association, several South American countries, Canadian Medical Association, American Bar Association, and American Dental Association.

What constitutes hospital service was defined in a reference committee report and was approved. Hospital service as defined does not include radiology and laboratory service, which is the same contention as was affirmed by the California Medical Association in 1935 and 1936.

Approved hospitals must have medical staffs composed of members of county medical societies.

For further detailed official action, please refer to the official minutes as published in the *Journal of the American Medical Association*.

These comments were penciled in Chicago midst a humid, sweltering atmosphere, a few hours before boarding the train. On future occasions it is intended to make further comment upon the recorded transactions of this annual session.

*All articles listed under the caption, "This Month's Topics," have been written and sent to the Editor by the Association Secretary, Dr. Frederick C. Warnshuis.

WHAT DO YOU RECOMMEND?

In these days of unrest and change, individual and groups of medical men, with increasing frequency, ask: "Why isn't something done about this?" The answers are not borne of the moment or in a single mind. Those in position of office and trust have warned, have sought answers, have pleaded for unity of action for the past ten and twenty years in a very sincere and earnest endeavor to bring about concerted action and unity of purpose to ward off many of the now undesirable practices and conditions. These pleas vaporized in the wide heavens. Medical men evidenced no concern or interest as a whole until the past few months or years. Now, finding themselves in the very midst of conditions that seriously threaten their former relationships and comings and goings, the questions are numerous—"How did this come about?" "Why isn't something being done about it?" The first question can be answered readily and the indictment placed upon the doorstep of medical men. The second question does not lend itself to a solving answer because of a mass division of opinion and an unwillingness to subscribe support and give cooperative observance to movements designed to eliminate intolerable conditions and practices.

For future guidance, and in further endeavors to find answers and solutions, we are inviting *you*, fellow member, to send in your recommendations upon:

1. How can there be brought about a wider observance of the principles of ethics? (There is a fundamental need that such observance be universal if majority action is to be obtained.)
2. How can personal quests and ambitions be made to be subservient to the better interests and practices of the entire membership?
3. How can public good will be established for scientific medicine and its practitioners?
4. How can standards of practice and service be raised and reflected in every practitioner?
5. How can practitioners be caused to recognize the importance of preventive medicine, practice it and bring about the return of this branch of medicine from the public clinic to the physician's office?
6. How can industrial medicine and surgery be taken away from the control and dictation of insurance companies and corporations, and how to eliminate contract practice in this field of medicine?
7. How can we cause practitioners to realize their limitations and cause them to desist assuming care and treatment of cases which they are incompetent to treat?
8. How can guild loyalty and support be developed and applied?

These are questions that are of grave concern and interest to your officers, council, and standing committees. They seek and welcome your answers. May you be heard from.

ASSEMBLY BILL 1491

The following statement is taken from the Assembly Daily Journal of Friday, May 21, 1937:

Statement Relative to Assembly Bill No. 1491

By Mr. Welsh:

During the arguments on the floor when Assembly Bill No. 1283 was under consideration, I stated that, in my opinion, the sponsors of this bill, Assembly Bill No. 1491, were not acting in good faith, and that this bill would not be urged for passage.

I believe that statement was erroneous, and I am now of the opinion that the authors of Assembly Bill No. 1491, and its sponsors, were actuated by the highest motives and an honest and sincere desire to furnish to the people of the State an adequate low-priced health and medical service.

However, our knowledge, gained from the deliberation on both Assembly Bill No. 1283 and Assembly Bill No. 1491 have convinced the authors of Assembly Bill No. 1491, as well as me, that the enactment of any legislation upon this subject is not practical unless and until the matter has been thoroughly considered by all interested—particularly having in mind the administrative and technical problems involved.

We feel that the entire future of health insurance may be jeopardized by unfavorable conditions which may be

unthinkingly imposed through hastily enacted and not fully considered, legislation.

Because the two bills which have been presented to this Assembly might react to the detriment of health and medical service insurance, although being intended to have the opposite result, I feel, and am joined in my sentiment by the authors of Assembly Bill No. 1491, that the best interests of the public will be served by deferring action upon this important subject until the administrative and technical features have received more adequate consideration.

May I say again that I have the greatest of faith in the sincerity of the sponsors of this bill and, as I hope was made clear by me previously, I have never questioned the sincerity of its authors.

RALPH LOUIS WELSH, *Assemblyman*.

THE NATION'S PRESIDENT REPLIES

CALIFORNIA MEDICAL ASSOCIATION

May 14, 1937.

Franklin Delano Roosevelt
President of the United States
Executive Offices
Washington, D. C.

Your Excellency:

The California Medical Association, representative of 83 per cent of the licensed, practicing physicians and surgeons in California, convening in its sixty-sixth annual session in Del Monte, California, on May 2 to 6, 1937, adopted the enclosed resolution.

By official action, I was directed to transmit the resolution to you with the respectful and earnest request that you accord it your sympathetic consideration and endorsement. Further, that you be earnestly requested, should occasion arise, to be guided by these expressions from our members who are deeply concerned with the health welfare of fellow men and who desire to preserve for them the high quality of American scientific medical care and service which can only be attained under medical supervision and leadership. By education, training and experience, doctors of medicine are the only capable individuals competent to direct and supervise medical care under federal and state control. Therefore, their services should never be mobilized under lay control and direction.

We sincerely trust you will recognize the basic and fundamental principles that are contained in the resolution and subscribe your support to conserve them for the best health interests of the peoples of this nation and the future of American medicine and its practitioners.

Respectfully submitted,

THE CALIFORNIA MEDICAL ASSOCIATION.
(Signed) Frederick C. Warnshuis, M. D.,
Secretary.

RESOLUTION

Adopted by the California Medical Association in annual session, May 2-6, 1937.

WHEREAS, The Board of Trustees of the American Medical Association has promulgated the following policy and principles:

"Recognizing that committees of the Senate and the House of Representatives of the United States Government and a special committee appointed by the President are at this time concerning themselves with the reorganization of government activities with a view to greater efficiency and economy, and recognizing also that the President, in his opening address to Congress, indicated that he would shortly present to the Congress recommendations for such reorganization of governmental activities in the executive branches, and recognizing, moreover, the great desirability that all activities of the Federal Government having to do with the promotion of health and the prevention of disease might with advantage be consolidated in a single department which would not, however, be subservient to any charitable, conservatory or other governmental interest. It has been repeatedly said that public health work is the first problem of the state. It is the opinion of the Board of Trustees that health activities of the Government, except those concerned with the military establishments, should not be subservient to any other department interests. The reorganization and consolidation of medical departments need not, under present circumstances, involve any expansion or extension of governmental health activities, but should serve actually to consolidate and thus to eliminate such duplications as exist. It is also the view of

the Board of Trustees that the supervision and direction of such medical or health department should be in the hands of a competently trained physician, experienced in executive administration"; and

WHEREAS, The medical profession, by reason of its members' medical education, training, and experience, is most competent to determine the medical needs and services that are essential for the conservation of the public's health welfare; therefore, be it

Resolved, That the California Medical Association endorse the policy and recommendations of the Board of Trustees of the American Medical Association as herein stated; and be it

Resolved, That the Secretary of the California Medical Association be hereby instructed to transmit this resolution to the President of the United States, to the members of the Senate and House of Representatives of Congress, and to the Board of Trustees of the American Medical Association; and be it

Resolved, That the Chairman of the Council and the Secretary of this Association address a communication to the senators and congressmen of California respectfully, urging them to support this policy and recommendation.

THE WHITE HOUSE
WASHINGTON

May 17, 1937.

My dear Doctor Warnshuis:

This will acknowledge the receipt of your letter of May 14 with the enclosed copy of resolution adopted by the California Medical Association, which will be brought to the President's attention. I know he will appreciate having the views of your Association.

Very sincerely yours,

(Signed) M. H. McINTYRE,
Assistant Secretary to the President.

LEGAL DON'TS

It is necessary to continuously remind members to be on their guard to avoid legal pitfalls. For that reason the following suggestions are advanced.

Robert Dineen writes that a doctor's encounter with law will not be unpleasant if he will keep three things in mind:

1. He is a member of a dignified and honorable profession.
2. Common honesty always pays dividends.
3. Common sense is a virtue.
Don't run down your brother physician.
Be careful what you write to your patients.
Be careful about placing the collection of overdue accounts in the hands of collection agencies.
Keep up to date.
To these there can be added:
1. Do not hesitate to call consultants in serious cases.
2. Keep accurate records and do not give copies of your records.
3. In accidental injuries do not neglect the taking of x-ray pictures. Keep these and retain radiologists' report.
4. Be guarded in your promises and prognosis. Don't be "gossipy."
5. On questions of law and rights be guided by the advice of legal counsel and subjugate your own opinions and ideas to those of a competent attorney.

A GOOD RESOLUTION

Let us firmly resolve that there shall be but one class of doctors—good doctors. And remember, you who neither hold an office in your State Association nor have an ambition to hold one, that those who are holding offices, subject to your own selection, do so with but one thought—to serve the medical profession of this state and nation, and through them, the people of this state and nation. There have been no great battles in the world's history where certain divisions of the Army did not have some weak and selfish elements which would have failed in the face of fire had it not been for the steadfastness of the faithful. One of the grandest words in any language is that word "faithful." True to a trust invested in you, and dependent upon you for execution.—Williamson, *Tennessee Medical Journal*, May, 1937.

C. M. A. DEPARTMENT OF PUBLIC RELATIONS†

PUBLIC HEALTH EDUCATION

Under instructions of our House of Delegates, California's delegates to the American Medical Association were instructed to introduce the following resolution at the Atlantic City session:

(a) Resolution Regarding Public Health Education and Educational Films

WHEREAS, The public today is seeking and demanding dependable health information and knowledge; and

WHEREAS, This demand is being partly met by self-seeking, non-authentic and non-scientific sources, namely, the advertisers and vendors of remedies, and self-constituted, inadequately educated cults and charlatans; and

WHEREAS, Misleading and false information is being transmitted to the public through the various avenues of publicity which constitute a very definite menace to the health welfare of the public of this nation and, therefore, demands the concerted action of organized medicine to aid and support the physician in fulfilling his duty to the public as expressed in Sections 1 and 3, Chapter IV of the Principles of Medical Ethics of the American Medical Association; and

WHEREAS, Methods and channels through which educational information is being imparted have materially changed in the past twenty-five years from the written page to the radio, and now to the moving picture with sound-effect; and

WHEREAS, Motion pictures bringing the story of medicine to the public have been used in a very limited way by the profession and by organized medicine; and

WHEREAS, The visual story of medicine in film lends itself to dramatization of great general interest and offers effective means for desirable educational work in the public's behalf, and will create an appreciation of the science of medicine and of those who represent it; and

WHEREAS, Motion-picture films must be of understandable pictorial and dramatic quality that calls for the expenditure of money for scenarial writing or scripts and dialogue; and

WHEREAS, Such moneys cannot be expended by individual physicians or by component county medical units; and

WHEREAS, Motion-picture films of a character contemplated in this resolution should be used nationally to the benefit of the public; therefore, be it

Resolved, That the House of Delegates of the California Medical Association at Del Monte, California, in May, 1937, instruct its delegates to the House of Delegates of the American Medical Association meeting at Atlantic City, June 6 to 11, 1937, to introduce and to support a resolution calling upon the Board of Trustees of the American Medical Association to give immediate consideration to the production of educational films, with and without sound-track, and that such films be made available for the various component state and country medical societies throughout the country for these educational purposes.

This is an excellent step in advance. The next step is to be taken by county societies in the arranging of a series of local public meetings. These should be sponsored primarily by the county society and publicly by some local organization—Auxiliary, Parent-Teacher Associations, or women's clubs.

County societies are requested to arrange for such meetings by the appointment of a committee charged with this responsibility. Plans should be made now to initiate these series early in the fall.

Study of Alcoholism

A grant of \$44,000 by the WPA has launched a study of the causes and consequences of alcoholism at the Boston City Hospital. So reports the *New England Journal of Medicine*. A committee of five, with Dr. John A. Foley as chairman, will direct the study.

†The complete roster of the Committee on Public Relations is printed on page 2 of the front advertising section of each issue. Dr. Charles A. Dukes of Oakland is the chairman, and Dr. F. C. Warnshuis is the secretary. Component county societies and California Medical Association members are invited to present their problems to the committee. All communications should be sent to the director of the department, Dr. F. C. Warnshuis, Room 2004, Four Fifty Sutter Street, San Francisco.

Some interesting figures may be compiled, certain physiological results classified, pathological changes recorded and "sobering" treatment will be outlined. And that is about all that can be expected.

There is something more than the moral factor in this problem of alcoholism. Something more than the mental, social, economic and environment factors that produces the urge for individuals to indulge in excessive alcoholism. Who can tell or state the basic causes of this complex problem? National prohibition by legislation failed. What other means are at hand to curb or restrict this national, yes world-wide habit of alcoholic indulgence and over-indulgence? Answer, you moralists, you physiologists, you political leaders, and officials! Our inability to answer is admitted.

COMPONENT COUNTY MEDICAL SOCIETIES

SAN JOAQUIN COUNTY

The regular meeting of the San Joaquin County Medical Society was held at the Trocadero Club in Lodi on June 3.

A fine dinner was served. The application for membership of Dr. A. K. Merchant being favorably passed on by the Admissions Committee, and there being no objections from the floor, Doctor Merchant was declared a member. Applications for membership were received from the following: Doctors J. O. Eccleston, Wilfred I. Gotanda, S. W. Leiske, and E. D. Auppurger, and were referred to the Admissions Committee for action.

Dr. Dewey Powell gave a very short résumé of the meeting of the California Medical Association at Del Monte. Dr. C. A. Broadus made a motion, seconded by Doctor Powell, that the Secretary be requested to write a letter to Assemblymen James Thorpe and Charles Weber and to Senator Bradford Crittenden and thank them for their cooperation during the recent meeting of the California Legislature.

The paper of the evening was given by Dr. S. P. Lucia, Assistant Professor of Medicine at the University of California. Doctor Lucia spoke on *Ancient Greek Physicians*. This was illustrated by slides, and was extremely instructive.

A standing vote of thanks was taken, thanking the Roma Winery for furnishing very delicious sparkling burgundy and champagne.

There being no further business to come before the Society, the meeting was adjourned at 10 p. m.

G. H. ROHRBACHER, *Secretary*.



SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held on Monday evening, June 14, at Bissell Auditorium, Cottage Hospital.

The speaker of the evening, Dr. Frank H. Krusen, Director of Physical Therapy at the Mayo Clinic, was introduced by Dr. John S. Hibben of Pasadena, Chairman of the Executive Committee of the Pacific Physical Therapy Association.

Doctor Krusen gave an extremely interesting and instructive talk upon *Fever Therapy*, stressing especially its use in gonococcus infection. Questions and discussion followed.

Doctors Robert Carter of Santa Barbara and Yoshitaka Nakano of Guadalupe were unanimously elected into membership.

No meetings will be held during July and August.

WILLIAM H. EATON, *Secretary*.

CHANGES IN MEMBERSHIP

New Members (28)

Alameda County.—Herbert C. Archibald, Ralph della Sala, David M. Grantham, Ronald M. Troup.

Fresno County.—W. L. Adams, Jr.

Los Angeles County.—Ladislaus Friedman, Louis J. Gogol, John F. Hull, Max I. Lomas, Sverre Oftedal, Gerhard D. Ruth, Emil Seletz, W. R. Senseman, Reginald H. Smart, George E. Tucker.

Marin County.—George C. Lowell.

San Bernardino County.—V. Giddings Slater.

San Diego County.—Roy K. Tanaka.

San Francisco County.—Walter Beckh, Philip P. Bill, Felix Cunha, Richard J. Wagner, Edwin E. Ziegler.

San Joaquin County.—A. K. Merchant.

Santa Clara County.—Kristian Johnsen.

Solano County.—George J. Budd.

Sonoma County.—Herbert W. Hyatt.

Tulare County.—Thorwald Johnson.

Transferred (5)

William H. Blackman, from Imperial County to Riverside County.

Lawrence R. Leidig, from Tulare County to Los Angeles County.

Benjamin F. Miller, from Yuba-Sutter County to Los Angeles County.

Allen H. Williams, from Santa Barbara County to San Mateo County.

J. Guild Wood, from Los Angeles County to Oklahoma State Association.

Resigned (1)

John A. Crowe, from San Francisco County.

In Memoriam

Alvarez, Luis Fernandez. Died at Los Angeles, May 26, 1937, age 84. Graduate of Cooper Medical College, San Francisco, 1887, and licensed in California the same year. Doctor Alvarez was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



Brown, Newbern Nuckolls. Died at Los Angeles, May 30, 1937, age 54. Graduate of the College of Physicians and Surgeons, Los Angeles, 1905. Licensed in California in 1906. Doctor Brown was a member of the Kern County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.



Rook, Charles Wesley. Died at Montrose, April 15, 1937, age 77. Graduate of the University of Michigan Medical School, Ann Arbor, 1883. Licensed in California in 1923. Doctor Rook was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



Sweet, Earl Bertrand. Died at Los Angeles, May 22, 1937, age 62. Graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1898. Licensed in California in 1899. Doctor Sweet was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

OBITUARY

Dwight H. Trowbridge 1870-1937

Died at Pasadena, California, May 4, 1937, of bronchopneumonia, at the age of 66. Born in Ohio, September 1, 1870. Received medical education at Cooper Medical College in San Francisco, and graduated from Tulane Medical School, New Orleans, Louisiana, in 1893. Doctor Trowbridge did general practice in Fowler, California, for two years after graduation; then moved to Fresno, California, as an eye, ear, nose, and throat specialist, where he resided for forty years. He married Margaret A. MacCormack in 1895, by whom he had two children: Elizabeth Trowbridge Kent of Berkeley, California, and Dwight H. Trowbridge, Jr., M. D., of Fresno, California.

Doctor Trowbridge took postgraduate work at the New York Postgraduate Hospital, Manhattan Eye and Ear

Hospital, and at the Allgemeinen Krankenhaus in Vienna. He was a member of the American Medical Association; the American Laryngological, Rhinological, and Otological Society; the California State Medical Society; the Pacific Coast Otological Society; the Fresno County Medical Society, of which he was past president; and a Fellow of the American College of Surgeons.

He was examiner for the Aeronautics Branch of the Department of Commerce. He was one of the founders of the Burnett Sanitarium Company and was secretary of the company during the entire time of its existence up to the date of his death.

Doctor Trowbridge was interested in all phases of public action that affected the medical profession, taking an active part on legislative committees. He was an untiring worker in all things in which he became interested or in which he felt a responsibility.

He was sincerely sympathetic with his younger associates and was one of the organizers of the local scholarship fund.

In the death of Doctor Trowbridge the profession has lost not only a capable physician, but a truly sympathetic and active worker.

O. B. DOYLE, M. D.,

Secretary, Fresno County Medical Society.

✦

Granville MacGowan

To the Family of Dr. Granville MacGowan:

Resolutions paying tribute to the memory of Dr. Granville MacGowan were read at the annual meeting of the American Urological Association, which convened in San Francisco, California, on June 26, 1935. They were unanimously adopted and have been made a part of the permanent records of the Association. On the occasion of the reading of the resolutions the assemblage stood for one minute in silence as a reverential tribute to the member commemorated therein.

The resolutions are presented to you in sympathy and respect.

Very sincerely yours,

AMERICAN UROLOGICAL ASSOCIATION.

Clyde Leroy Deming, M. D.,
Secretary.

✦ ✦ ✦

Through the death of Dr. Granville MacGowan of Los Angeles, an ex-president of the California Medical Association, the medical profession has lost one of its most highly respected and truly revered members. He was a great and benevolent man, the natural fruits of his sterling character and outstanding intellectuality. His brusque exterior was oftentimes a mask for some kind and generous deed.

Coming as he did some fifty years ago to Los Angeles, then a small, undeveloped community, far from the medical centers of our country, he proved himself one of the greatest of that small group of courageous medical pioneers in the Southwest. Probably more than any other man in Southern California and its tributaries, he has left his influence on the practice of medicine and on his chosen field of medicine. In many ways his professional contributions and influence have been not only local, but international. To those of us who have known him intimately these many years and have enjoyed the privilege of his intellectual perspective and guidance, comes a bereavement through death comparable only to our esteem in life; comes the rare appreciation of his earnest and fundamentally sound day-to-day teachings as distinguished from any of those periodic attempts to be spectacular and theatrical, an offense from which he was always totally devoid.

It can be truthfully said his influence on the practice of medicine, and surgery in particular, in this part of the country is so ingrained as to have become woof and warp of the fabric, and not one of those greatly to be avoided careers of tinsel-draped pinnacles.

The most fitting monument we can erect to the esteemed memory of Doctor MacGowan is for each member of this group to imitate, to the best of his ability, the courage, the goodness, and supremacy of this truly great man.

THE WOMAN'S AUXILIARY TO THE CALIFORNIA MEDICAL ASSOCIATION†

President's Annual Report for the Year 1936-1937

Since a detailed account of the activities of the Auxiliary will be furnished by the members of the State Board and the county presidents at a later session of the convention, this report will be limited to a general survey of the year's work.

A year ago this month I attended the annual meetings of the Woman's Auxiliary to the American Medical Association and to the California Medical Association. You have received my résumé of the activities of the former body. The knowledge gained and the contacts made on those occasions have been a constant source of help to me in my work. The value of attendance at the National convention cannot be overestimated. It is indispensable for the president-elect if she is to have a comprehensive view of her own task. Moreover, I urge every member of the Auxiliary, whether or not an officer, to go to the National convention. Your loyalty to your organization will be strengthened and your vision of its possibilities enlarged a hundredfold.

Some time was required for me to digest the wealth of facts and impressions which filled my mind at the close of the meeting at Coronado and to chart my course—a course that was to follow these directions.

The fundamental objectives of our work remain the same. The points on which emphasis should be placed change with changing conditions. Since, in my opinion, the greatest influence of the Auxiliary is exercised through the personal contacts of individual members, and since there is a definite need at this time for making our influence felt as widely as possible, I have seized every opportunity to place before the county units the goal of a 100 per cent membership. Unusual progress has been made in some instances while officers in every county have cooperated earnestly.

There is a rapidly increasing number of the citizens of California who believe that the care for all the sick should be a function of the State. Various plans to furnish such medical care, together with the legislation necessary to set them in operation, are being proposed. It follows that it is important for the public to receive accurate information as to the ultimate results of such legislation. Here is a type of public education in which every member of the Auxiliary may participate. It was with this public service in mind that an intensive membership campaign was recommended.

It seemed essential also in preparation for this service that our members should become informed immediately concerning various aspects of socialized medicine and other kindred subjects which are occupying the attention of our state legislators at the moment. This has been another matter which I have stressed this year.

The County Auxiliary is the unit with which a member is most closely identified and it naturally commands her first loyalty. Yet her outlook broadens, her appreciation of the possibilities of the Auxiliary increases, the more she thinks in terms of the State as well as the local group. It seemed to me that such an enlarged outlook should be encouraged. A step had been taken already in this direction in the presentation of the membership trophy by Mrs. Philip Doane. For, as it passes from county to county and name after name is engraved upon it, it becomes a symbol of an increasing and united membership. The State Board this year has taken another step in this direction by inaugurating a State project, a lending library of books and other health education material for the use of the Auxiliary members and other health agencies. It is hoped that this library not only will be of use to the auxiliaries, but will

†As county auxiliaries of the Woman's Auxiliary to the California Medical Association are formed, the names of their officers should be forwarded to Mrs. Fred Zumwalt, Chairman of the Publicity and Publications Committee, 3880 Clay Street, San Francisco. Brief reports of county auxiliary meetings will be welcomed by Mrs. Zumwalt and must be sent to her before publication takes place in this column. For lists of state and county officers, see advertising page 6. The Council of the California Medical Association has instructed the Editor to allocate two pages in every issue for Woman's Auxiliary notes.

enlist their financial support, thus in two ways linking them to the State organization. In September the Board voted a small sum to start the project.

Since then, through Mrs. Glaser's efforts, a collection of books has been assembled. Also Mrs. John V. Barrow has been appointed librarian, a position which, in the judgment of the Board, should be held for a period of years but should not necessitate membership on the State Board. In March San Diego County Auxiliary, by a generous gift of \$50, endorsed the library project and made possible further additions to its contents. To the members of this, my own county, I extend my deep appreciation of this expression of personal loyalty and of interest in Auxiliary work. May other counties be prompted to similar action.

Our accomplishment this year in the two activities sponsored so strongly by the National Auxiliary, the Health Institute and *Hygeia*, has been gratifying.

Santa Barbara County deserves high commendation for the success of its first Health Institute. It was held two days, being participated in by some sixteen national and local health agencies, and offered a varied program of lectures, demonstrations and exhibits, pictorial and mechanical. San Diego County deserves congratulation on the results of its second annual Health Day program. That the community appreciates this opportunity to receive authentic information about health problems is shown by the fact that the attendance was double that of the previous year. It is to be hoped that other counties will inaugurate similar enterprises next year. Helpful suggestions regarding methods are obtainable from the records of Santa Barbara, San Diego, and Alameda counties—the three counties which thus far have undertaken this project. Write the State Public Relations chairman for the information.

So much fine work for *Hygeia* has been done that it is a temptation to comment on the results in each county. Marin County, however, merits the congratulations and thanks of the entire Auxiliary for the distinction of earning California a place among the seven states in which counties received honorable mention for their achievements in the McReynolds *Hygeia* subscription contest.

One new county has joined our ranks this year. We are happy to welcome Monterey County with its twenty-five active members, who together with the members of the Santa Clara Auxiliary have been active indeed in arranging for this convention.

I regret to inform you that Siskiyou County disbanded last June. The group was small and the members so widely scattered, it was difficult to get together. Therefore, when two of the most Auxiliary-minded moved out of the county the others felt they could not carry on.

During the year it has been my privilege to be the guest at meetings in fifteen counties. The report of these visits appeared in the last issue of our news sheet, *The Courier*.

The State Board has met four times, with an average attendance of over 75 per cent. Eleven county presidents attended one or more of these sessions.

Dr. George H. Kress, Editor of CALIFORNIA AND WESTERN MEDICINE, honored the Woman's Auxiliary by devoting an editorial page of the March issue to comment on its value and accomplishments. The following is a quotation from Doctor Kress' article: "A Woman's Auxiliary to every County Medical Society would mean stronger component county units and a greater, more efficient State Association."

This year, as in the past, all the members of our Advisory Council have given generously of their time to the interests of the Auxiliary. Dr. W. J. Kerr, the chairman, has passed upon the various programs, and on several occasions advised me personally.

Dr. Frederick C. Warnshuis, Executive Secretary of the California Medical Association, early in the year tendered us the services of his office. Members of the State Board have called upon him frequently and found him generous with his time and most sympathetic with our problems.

Our thanks are given Mr. Ben H. Read, Executive Secretary for the Public Health League of California, who has addressed several county auxiliaries, as well as the State Board. While these talks were instructive, even more valuable to the Auxiliary has been the stimulus we received from Mr. Read's frequent expression of his belief in the potential power of our organization.

There is no yardstick by which the success of the efforts of the Auxiliary in its most important work—the further-

ance of public health education—may be measured. However, the records of the membership and *Hygeia* campaigns, which show an increase of 26 per cent and 40 per cent, respectively, may serve as an index of accomplishments in other fields.

As time passes, the Auxiliary should grow in numbers, in breadth of vision, in understanding of its objectives, in the esteem of the Medical Association and the public, and in its influence in determining public health conditions.

If during this year I have contributed to progress along any of these lines, I am happy. Thank you for the confidence you have placed in me and for the privilege of serving you. Respectfully submitted,

Mrs. ANDREW J. THORNTON, *President*.

News Letter

Dear Auxiliary Members:

Greetings!

Much has been written in retrospect. The aims of our organization, we know; the work already accomplished has been often and ably reviewed; our leaders (those who so carefully and skillfully led the way) have been highly and justly praised. So the days of pioneering are over and from now on it is not what we have done, but what we will do that counts. "To serve" has become almost a slogan and "opportunity knocks!" San Francisco, the convention city for the American Medical Association in 1938, and all of California the hosts! Just one short year in which to prepare for this avalanche of friends from all over the country. It will be your duty to make their visit enjoyable, interesting, and memorable.

As yet election returns have not been received from all the counties, but those already in will be found in the usual place.

May I take this opportunity to thank Mrs. Robert Furlong, your former and most efficient chairman of publicity, for her many and helpful suggestions to me. If at the expiration of my year I have served you as well as she, I shall be glad.

Most sincerely yours,

Mrs. FRED H. ZUMWALT.

Component County Auxiliaries

Alameda County

The Woman's Auxiliary to the Alameda County Medical Association held its regular meeting on Friday, May 21, 1937, at the Oakland Club, Oakland.

Members and guests were entertained with a special Mother's Day program, Mrs. W. C. Sharpsteen bringing greetings from the mothers, and Mrs. Helen Gleason bringing greetings from the daughters. A very delightful musical program followed, after which the business meeting was held. Mrs. William Sargent gave a most interesting talk on "Highlights of the State Convention." Mrs. A. A. Alexander, Chairman of the Membership Committee, reported that the paid-up membership now totaled 253, the greatest number since its organization. Mrs. Clarence Page gave the annual president's report for the year; Mrs. Alexander, the new president, then took over the meeting.

After adjournment, tea was served in the clubroom, which had been beautifully decorated with pink May blossoms and spring flowers.

Mrs. ROBERT A. GLENN, *Publicity Chairman*.



Los Angeles County

The Woman's Auxiliary to the Los Angeles County Medical Association met at luncheon May 25 at the County Medical Building. Guests of honor were health chairmen of the Parent-Teacher Association. Over 125 members were present.

Mrs. Karl Von Hagen read a splendid paper on *Evolution of the Hospital*. A musical program was given by Mrs. Walter Wessels, followed by the presentation of awards in the Parent-Teacher Association Health Contest sponsored by the Auxiliary.

This contest marks only the beginning of the Auxiliary's efforts toward health education, and its success was largely due to the chairmanship of Mrs. Paul Quaintance of the Public Relations Committee. Mrs. Quaintance reports in part:

"The objectives of the Public Relations Committee for the year 1936-1937 have been to promote health education among lay groups and to effect such coöperative endeavor

with the Los Angeles County Medical Association as would make the health education program of definite value.

"Because the Parent-Teacher Association was organized for the welfare and health of the child, and inasmuch as its organization for study in health education already was in existence, it was chosen as a logical group in which to initiate a project in health education. The object of this project was to encourage the competitive endeavor of local health chairmen in the city and county by offering rewards to the four chairmen in each district who had promoted and followed to completion the most effective plans of health education. The subjects studied and the method of approach were left to the discretion of the local groups. The lecture method, discussion groups, and promotion of health activities in the community, the school, and the home, were encouraged. Materials were furnished to health chairmen wherever interest was manifested. Approximately two hundred sample copies of *Hygeia* were distributed. Seventeen subscriptions to this magazine were obtained from local health chairmen. Study envelopes of the Woman's Auxiliary, on contagious diseases, milk, blindness, and common defects in children, were distributed to 150 Parent-Teacher Association groups. Health plays were given to seventy health clubs for production by the children. Mimeographed programs of radio broadcasts of the Los Angeles County Medical Association were distributed three months in advance for the use and benefit of radio-listening groups.

"From the speakers' bureau organizations, forty-three speakers were secured who gave health talks before Parent-Teacher Association groups.

"In coöperation with the Health Department of the Tenth District Parent-Teacher Association, material and counsel were offered to aid in the organization of health clubs, some of which met weekly for from four to ten weeks, an organized continuity of study of health problems was made possible.

"In furtherance of the principle of practical application of preventive medicine among children of the preschool age group, contact was established between the Los Angeles County Medical Association and chairmen of the Summer-Round-Up (a general physical examination for the purpose of detecting physical defects prior to the child's admission to school). The purpose of this contact was to encourage Summer-Round-Up chairmen to have these examinations made by regular doctors of medicine rather than by irregular practitioners or cultists. In this connection, permission was obtained from the Council of the Los Angeles County Medical Association to publicize the telephone number as a source of reliable health information. This number remains constant, and frequent mention of it to lay groups will encourage the public to consult the county medical association as a clearing house for facts pertaining to health."

At this meeting also was the election of new officers as follows: Mrs. Eliot Alden of Los Angeles, president; Mrs. Mark A. Glaser of Los Angeles, first vice-president; Mrs. Edward Winslow Jones of Pasadena, second vice-president; Mrs. Rufus Holt of Los Angeles, recording secretary; Mrs. C. G. Stadfield of Los Angeles, treasurer.

Directors—Mrs. John Martin Askey of Los Angeles, Mrs. William H. Leake of Beverly Hills, Mrs. Newell Jones of Los Angeles, Mrs. Francis Hertzog of Long Beach, Mrs. P. A. Gallant of Huntington Park, and Mrs. E. B. Plimpton of Los Angeles.

The meeting closed with many tributes to the retiring president, Mrs. Clifford A. Wright, who has made this year a memorable one through her friendliness and graciousness as well as through her efficiency.

MRS. ROBERT L. CARROLL, *Corresponding Secretary*.

Mrs. Clifford A. Wright, President of the Los Angeles County Auxiliary, entertained with a tea at her home on May 7 in honor of Mrs. Robert E. Fitzgerald, National President of the American Medical Association Auxiliary.

Circulating Library.—A circulating library, whose volumes are available to all members, has been founded by the Woman's Auxiliary to the California State Medical Association. It has its quarters in the Library of the Los Angeles County Medical Association at 634 South Westlake Avenue, Los Angeles.

To help Auxiliary members in community health endeavors is the main purpose of the library. A book review

of Heiser's *American Doctor's Odyssey*, a program on children's health habits, or a discussion tracing the story of some great plague such as yellow fever—these are the types of group work the library hopes to supplement. It is believed Auxiliary members who are organizing Parent-Teacher Association programs will find the circulating library volumes especially valuable. In this connection a number of one-act health plays, to be presented by children, are available.

The library is starting with books chosen to supply the varied types of materials wanted by Auxiliary members. Thus there are books on medical history, eugenics, medical personalities, health problems of youth, specific diseases, and similar subjects.

The Auxiliary is indebted to Mrs. Andrew J. Thornton, who first conceived the idea of the library. We also wish to acknowledge gifts of \$50 from the San Diego Woman's Auxiliary, two of Dr. Josephine Jackson's books which she donated, and several volumes from Mrs. Elmer Belt and Mrs. John V. Barrow.

San Francisco County

The Woman's Auxiliary to the San Francisco County Medical Society, through its president and board of directors, has made definite plans for the coming year.

There will be six regular meetings held at the home of the County Medical Society, 2180 Washington Street, on the third Tuesdays of September, October, November, January, March, and April, at 1:30 p. m. These meetings will be devoted to hearing major health problems discussed by distinguished speakers. On September 16, Dr. Philip H. Pierson, President of the California State Tuberculosis Society, will talk on the *Present Status of Bovine Tuberculosis and Its Relationship to Public Health*. This is a subject of great importance to all citizens of California, and members of the Auxiliary are given the privilege of inviting guests to this meeting.

The President and various members of the Board of Directors will be at home to all members of the Auxiliary on Monday afternoons, beginning September 13, from two until six o'clock, at 2180 Washington Street. Tea will be served, and we hope many will avail themselves of this opportunity to become acquainted with their organization and its members.

The officers for the year 1937-1938 are as follows: Mrs. Hans Barkan, president; Mrs. Lovell Langstroth, first vice-president; Mrs. Howard W. Fleming, second vice-president; Mrs. Julius Sherman, recording secretary; Mrs. William W. Newman, corresponding secretary; Mrs. John E. Humber, treasurer.

Board of Directors—Mesdames Fred H. Zumwalt, Frank H. Rodin, A. S. Musante, Howard B. Dixon, Harry R. Oliver, George H. Becker, Otto Laist, Anthony B. Diepenbrock, and Zura O. Waters.

The office of membership chairman will be conducted by Mrs. Edmund J. Morrissey.

Mrs. Fred H. Zumwalt will serve as editor of the Auxiliary *Courier*, the official publication of the State organization, issued in April and November.

Mrs. J. C. Geiger will act as councilor for the Sixth District. MRS. HARRY OLIVER, *Chairman of Publicity*.

Santa Clara County

The regular meeting of the Woman's Auxiliary to the Santa Clara Medical Association was held at the Sainte Claire Hotel on May 10, Mrs. Charles E. Moore, presiding. Over thirty members were present.

The following is a list of the officers for the coming year: Mrs. Henry Milo, president; Mrs. Cecil M. Burchfield, president-elect; Mrs. Morgan Dillon Baker, vice-president; Mrs. J. I. Beattie, treasurer; Mrs. Daniel Brodovsky, recording secretary; Mrs. Wesley Wright, corresponding secretary.

Dr. Jay C. Elder of San Jose State College was guest speaker, his topic being *The Progress of Medicine*.

The June meeting was held at the home of Mrs. Enos Paul Cook, 1175 University Avenue, on the 7th of the month. Two days later, on June 9th, Mrs. Cook graciously opened her home for a bridge tea, the members of the Auxiliary sharing the occasion.

This was the closing gathering of this group until fall, when Mrs. Henry Milo will assume the duties of president, succeeding Mrs. Charles E. Moore.

MRS. DANIEL BILKER, *Chairman of Publicity*.

MISCELLANY

Under this department are ordinarily grouped: News Items; Letters; Special Articles; Twenty-five Years Ago column; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the fifteenth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Coming Meetings

American Medical Association, San Francisco, June 7-11, 1938. Olin West, M. D., 535 North Dearborn Street, Chicago, Secretary.

California Medical Association, Hotel Huntington, Pasadena (date to be announced later), 1938. F. C. Warnshuis, M. D., 450 Sutter Street, San Francisco, Secretary.

• • •

Montana Medical Association, Great Falls, July 13-14. Thomas L. Hawkins, M. D., 50 North Main Street, Helena, Secretary.

Pacific Northwest Medical Association, Great Falls, Montana, July 8-10. C. W. Countryman, M.D., 407 Riverside Avenue, Spokane, Washington, Secretary.

Medical Broadcasts*

Los Angeles County Medical Association

The radio broadcast program for the Los Angeles County Medical Association for the month of July is as follows:
Thursday, July 1—KECA, 10:45 a. m., The Road to Health.
Saturday, July 3—KFI, 9:15 a. m., The Road to Health;
KFAC, 10:15 a. m., Your Doctor and You.
Thursday, July 8—KECA, 10:45 a. m., The Road to Health.
Saturday, July 10—KFI, 9:15 a. m., The Road to Health;
KFAC, 10:15 a. m., Your Doctor and You.
Thursday, July 15—KECA, 10:45 a. m., The Road to Health.
Saturday, July 17—KFI, 9:15 a. m., The Road to Health;
KFAC, 10:15 a. m., Your Doctor and You.
Thursday, July 22—KECA, 10:45 a. m., The Road to Health.
Saturday, July 24—KFI, 9:15 a. m., The Road to Health;
KFAC, 10:15 a. m., Your Doctor and You.
Thursday, July 29—KECA, 10:45 a. m., The Road to Health.
Saturday, July 31—KFI, 9:15 a. m., The Road to Health;
KFAC, 10:15 a. m., Your Doctor and You.

Physical Examination of Great Aid to Education.—Physical examinations are of great importance to education not only through their ability to acquaint young students with the importance of good health, but also in preparing preprofessional students for their careers.

This opinion was expressed in the June issue of the University High School Journal by Dr. Ruby L. Cunningham, professor of hygiene and physician for women at the University of California.

Even under the most unfavorable conditions, said Doctor Cunningham, a physical examination cannot fail to impart information and, by relating it to the health of the one examined, contribute to his education. Through such an examination students may be led to see their physical well-being as a personal responsibility and at the same time as a civic asset.

It is important that the examining physician take all possible pains to put the students at ease since many approach such a personal examination with some apprehension. At the University of California the station-to-station method of examination, in which the student is allowed to see others being examined before his turn comes, has been used with success.

Unusual educational opportunities are afforded by the examination which precedes professional training. Such examinations are required in many places of prospective librarians, medical students, social service workers, and almost universally of nurses and teachers.

*County societies giving medical broadcasts are requested to send information as soon as arranged (stating station, day, date and hour, and subject) to CALIFORNIA AND WESTERN MEDICINE, 450 Sutter Street, San Francisco, for inclusion in this column.

Effect of Vitamin Filtrate on Gray Hair Being Studied.—Evidence tending to show that a vitamin B filtrate factor in whole wheat, whole grains and other foods, prevents or arrests the graying of hair in humans and animals, is being put to an elaborate experimental test by the Household Science Department of the University of California. In preliminary tests made by the department on two rats, it was found that a special diet containing the filtrate not only arrested the graying of hair, but actually returned it to its original color, together with a general increase in vitality. The tests have now been expanded to include more than one hundred rat subjects, to determine if any definite conclusions are possible.

International Union Against Tuberculosis.—The tenth conference of the International Union Against Tuberculosis, postponed from 1936, will be held in Lisbon from September 5 to 9 inclusive, under the chairmanship of Prof. Lopo de Carvalho. The three topics of discussion will be: radiological aspects of the pulmonary hilum and their interpretations; primary tuberculosis infection in the adolescent and the adult; the open case of tuberculosis in relation to family and domestic associates. The speakers from the United States will include Dr. Charles J. Hatfield, Dr. Henry C. Sweeny, and Dr. Robert E. Plunkett. The local committee will present a program of receptions and excursions to be announced later. Information regarding program, membership in the Union, credentials, etc., may be obtained from the National Tuberculosis Association, 50 West Fiftieth Street, New York.

Hospital Rate Change Looms.—A new schedule of rates for services at the Los Angeles County General Hospital to replace the present flat rate of \$4 per day per patient has been prepared by the budget and report division of the County Auditor's Department. It will be presented in a few days to the Board of Supervisors for approval.

The new rates are practically made compulsory under a recent ruling of the District Court of Appeal which, in the case of O. P. Goodnall against the Board of Supervisors of Kern County, not only defined the class of patients that can be treated at a county hospital, but held that the fees should cover the actual cost of services given.

Under the new schedule a patient will be charged according to the services given him. These charges will be different, according to the ward he is in.

Those persons who are indigents will be given treatment the same as now, but a bill for the cost of their treatment will be turned over to the hospital's collection department.—*Los Angeles Times*, June 24, 1937.

Hard of Hearing to Have Special Work at the University of California at Los Angeles Session.—Persons handicapped by deafness have been especially provided for in the curriculum of the University of California at Los Angeles summer session, which opens here June 26, according to J. Harold Williams, Dean of the session. Three special training courses of interest to teachers of speech and lip-reading, as well as to persons hard of hearing, are planned by the University, with Mrs. Nellie Alford Hair and Mrs. Mary Roger Miller, authorities in this field, as instructors. They will offer summer courses in the Jena method of speech-reading as adapted for classes of adults and children, and another similar vocational course on the conservation of speech and hearing. These courses are open to everyone interested in learning the methods for personal use or teaching.

Application for admission to the University of California at Los Angeles summer session courses are currently being taken at the office of the Dean of Summer Session, University of California at Los Angeles, Administration Building, 405 Hilgard Avenue.

Symballophone Makes Disease Announce Itself.

The "symballophone," revolutionary rival of the physician's stethoscope, was given a demonstration before the annual meeting of the American Medical Association in Atlantic City, with Dr. William J. Kerr of the University of California Medical School, its inventor, as the demonstrator.

This mechanical short-cut to the heart of many human complaints was developed by Doctor Kerr after long experimentation with tuning forks and other aids not ordinarily associated with medicine. The device has two sets of cords and two sensitized discs. One cord goes directly from the disc to the ear. The other branches off to the opposite cord and the opposite ear. Through a series of adjustments at the junction of the cord, it is possible to detect instantaneously any differing chest, bronchial or other sounds, and also to note the difference in intensity of such sounds. These differing sounds are brought to the ear without any apparent interference, one with the other. The ordinary stethoscope can detect only one sound at a time, and the important factor of difference in pitch or density between sounds is often lost because of this fact.

New Treatment for Back Pains Holds Great Promise.—Clinical surgical procedures developed by the medical schools of the University of California and Harvard University and the Mayo Clinic for the treatment of various pains in the lower back, including some forms of sciatica, have met with "excellent results." This is announced by the Division of Surgery of the University of California School.

It had previously been determined that the protrusion of cartilage into the spinal canal following accident is the cause of a vast number of these complaints, according to Dr. Howard C. Naffziger, professor of surgery. It has now become possible to closely diagnose and remove the trouble. A number of patients have been treated according to the new procedure, and a high percentage of cures has been obtained.

Normally, this cartilage lies between the vertebral body and the spinal canal. Under certain conditions of undue strain or disease, this protective buffer breaks loose and dislocates backward into the canal. The type of surgical intervention worked out in the new procedure is regarded as a distinct advance in the treatment of chronic pains of the lower back due to this cause.

New Procedures to Check Hemorrhage Prove Successful.—Hemorrhage, one of the greatest of medical and surgical bugaboos, has been robbed of some of its principal hazards in significant procedures carried on by the University of California Medical School and other institutions. Through long-term research and experimentation with certain diets and medication, the Division of Surgery of the Medical School is able to announce a control of the bleeding tendency in jaundice and the possibility of surgical intervention on a definitely more satisfactory basis than heretofore. Simultaneously the Division of Medicine announces the successful outcome of certain experiments with x-ray radiation over the spleen to overcome idiopathic hemorrhagic attacks, or the types that originate without apparent external cause.

The bleeding tendency in jaundice is encountered with surgical intervention to remove the causative gall-stones, tumors, parasites or inflammations from the bile duct. It is caused primarily by the infiltration of sulphur compounds into the blood through the breakdown of tissues in the body or through certain dietary disturbances, and is a major handicap when surgical relief is called for.

In the work on the idiopathic types of hemorrhage, the University doctors considered evidence that the spleen is the primary focal point for the disease, although there may be others. The investigators were able to conclude that x-ray irradiation of the spleen resulted in a rapid rise in the blood platelets in a number of patients, the increase being evident within from twenty-four to forty-eight hours after the first exposure. With this increase there was a corresponding decrease in the hemorrhagic inclination, a cessation of spontaneous bleeding and a reduction in the clotting time. It was emphasized, however, that the procedure is not specific for such types of bleeding as hemophilia.

New Vitamin Shown to Have Many Possibilities.

Far-reaching possibilities, particularly in the checking of hemorrhagic disease in poultry, most of the common species of birds, and some animals, are revealed in experiments on vitamin K, the potent new dietary factor which, by a strange coincidence, was discovered simultaneously by scientists of the University of California and the University of Copenhagen. This is announced by Dr. H. J. Almquist, assistant professor of poultry husbandry at the University of California, who has succeeded in obtaining the vitamin in a crystalline fraction from concentrates obtained primarily from dried alfalfa.

One crystal fraction was found to be eight times as potent in inducing blood clotting in chicks as the fraction of the vitamin still remaining in solution. It has been determined also in experiments made by Dr. H. Dam in Copenhagen that the vitamin is potent in checking hemorrhagic disease in turkeys, ducks, geese, canaries, and other types of birds. One human experiment for the checking of hemophilia was without effect, but medical men are continuing their interest in the vitamin in this particular.

American Congress of Physical Therapy: Cincinnati, September 20-24, 1937.

Cincinnati and its medical groups will be host to the American Congress of Physical Therapy, which meets in the Ohio city, September 20 to 24. Plans are being made for a very large attendance, which will be comfortably cared for at the Netherland Plaza Hotel. Of special interest is the scientific program with its diversified symposia, clinical conference groups, demonstration clinics, and sectional meetings. Every specialty in medicine and surgery will be adequately represented. The scientific exhibits will be extensive and varied and should comprise an important part of the entire session. The technical exhibits will prove profitable in information to those who seek familiarity with the newer apparatus and equipment in physical therapy.

From every standpoint the sixteenth annual session offers an intensive "refresher" course in which will be embraced subjects like shortwave diathermy, ultra-violet radiation, low-voltage currents, exercise, massage, etc. Featured symposia include fractures, vascular diseases, poliomyelitis, fever therapy. There will be no registration fee, but the meeting is open only to duly licensed physicians and properly vouched for technical assistants. Plan now to attend the Congress session in September.

Physical Therapy Seminar.—The fifth annual seminar of the Western Section of the American Congress of Physical Therapy, in cooperation with the Pacific Physical Therapy Association, was held at Los Angeles on June 17, 1937, at the Los Angeles County Medical Building, 1925 Wilshire Boulevard.

The Seminar Committee was fortunate in securing as guest speaker, Dr. Frank H. Krusen of Rochester, Minnesota. Doctor Krusen is the author of more than two score articles on physical therapy problems, and has performed much original research work in this field.

The Seminar program was as follows:

Thursday, June 17, 9:30 a. m.

W. W. Worster, M. D., Chairman

Address of Welcome—W. W. Worster, A. M., M. D.

Fever Therapy by Physical Means—Frank H. Krusen, M. D., Rochester, Minnesota.

Practical Considerations in Obliterative Arterial Disease—Harold E. Crowe, M. D.

Physical Therapy in Diseases of the Biliary System—Fred B. Moor, M. D.

Thursday, June 17, 2 p. m.

Clinton D. Hubbard, M. D., Chairman

Physical Therapy in Arthritis—Frank H. Krusen, M. D., Rochester, Minnesota.

Manipulative Surgery: Studied with the Aid of Motion Pictures and Demonstration with Patient—G. Mosser Taylor, M. D.

Fundamentals in the Control of Therapeutic Waves—Presented with Graphic Descriptions—William L. Comyns, B. S., M. S.

Light Therapy—Frank H. Krusen, M. D., Rochester, Minnesota.

Banquet Session—Thursday, June 17, 7 p. m.

Los Angeles County Medical Building

Fred B. Moor, M. D., Chairman.

John Severy Hibben, M. D., Toastmaster.

Recent Advances in Physical Therapy Methods—Frank H. Krusen, M. D., Rochester, Minnesota.

Announcement: The American Congress of Physical Therapy will hold the sixteenth annual session at Cincinnati, Ohio, on September 20 to 24, 1937, at the Netherland Plaza Hotel. For information, write to American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

MEDICAL JURISPRUDENCE†

By HARTLEY F. PEART, ESQ.
San Francisco

Legal Relationship of Physicians to Their Patients and Scope of Physicians' Authority with Respect to Physical Examinations, Treatment, and Operations

The relation between a physician and his patient is said by the courts to be one of trust and confidence. Consequently, it is also the law that all dealings between a physician and his patient will be closely scrutinized, particularly those inuring to the benefit of the physician. Because of the trust and confidence involved, communications between a physician and his patient are privileged. (See Calif. Code of Civ. Pro., Sec. 1881.) A breach of medical confidence is universally regarded as unethical. But, in so far as the courts are concerned, the question whether a disclosure of a professional confidence may be the foundation of an action at law by the patient, depends on the character of the disclosure made. In other words, a breach of medical confidence is not always unlawful. For example, in *Simonsen vs. Swenson*, 104 Neb. 224, 177 N. W. 831, a physician who, in good faith and with reasonable grounds, decided upon confidential information given by his patient that the patient had a contagious disease, was not liable in damages to the patient for such disclosure to others made in order to prevent the spread of the disease. In so far as the law is concerned, if a disclosure of professional confidence will have a tendency to promote the general welfare of the community, a disclosure will not be actionable in the courts; but if a disclosure is made maliciously or for the sole purpose of injuring the patient, an action for damages would probably be allowed.

The relation of physician or surgeon and patient is also said to be one arising out of a contract, express or implied. If there is an oral or written agreement relating to the rights and duties of the physician with respect to his patient, there is an express contract. If there are merely acts and conduct by both parties the contract is said to be implied.

Since the duty owed to a patient is measured and determined primarily by the contract of employment, a physician or surgeon may by special agreement or notice limit the extent or scope of his employment.

Unless the terms of employment or notice limit the services to be given, the relation of physician and patient and the physician's employment continue until the physician's services are no longer needed or until terminated by common or mutual consent or at the will of either party.

As the relationship between a physician and his patient is contractual in nature as well as confidential, the ordinary rules with respect to breach of contract are applied by the courts in actions relating to the performance by the physician of his duties. It must be remembered that a physician who accepts a patient has entered into a contract and as such is obligated to render all of the services contemplated by the parties and is privileged to examine, treat or operate upon the body of the patient in so far as such physical con-

tact is necessary in order to carry out the duties imposed by the employment contract, *but only to that extent*. If a physician exceeds the scope of his employment, he may not rely upon the contractual relationship of physician and patient and he may be guilty of a battery or a trespass or both.

An illustration of the foregoing legal principles may be helpful. Some years ago a physician was employed to perform a surgical operation for the removal of a hernia in the region of the right groin of the patient. The operation was performed, and some months later an action at law was commenced against the physician in which the patient alleged that the physician had, in the course of performing the hernia operation, committed a trespass in that he had removed one of the patient's testicles without his consent and against his express direction. One of the District Courts of Appeal held that the patient's allegations stated a cause of action and that if the patient could prove the truth of his allegations he would be entitled to recover damages. The Court said:

The contention is made by (the physician) that the complaint states no cause of action for the removal of plaintiff's testicle without his consent. We think that it does, and that if this issue alone had been submitted to the jury a finding upon it in favor of plaintiff might have been sustained.

See *Markhart vs. Zeimer*, 67 Cal. App. 363.

The task of enumerating and discussing all of the acts which a physician may do in a particular case and which may legally be beyond the scope of his employment contract would require a great deal more space than is available. Dr. William C. Woodward, Director of the Bureau of Legal Medicine and Legislation of the American Medical Association, has discussed this subject fully and accurately in an excellent article appearing in the issue of January 4, 1936 (Vol. 106, No. 1) of the *Journal of the American Medical Association*, entitled "Authorization of Physical Examinations, Treatment, Operations, and Autopsies."

Doctor Woodward's opening paragraph is a concise summarization of the legal principles involved. It is as follows:

A physical examination of a patient cannot be made or an operation done, lawfully, without authority. Authority is necessary, too, before a physician can lawfully apply to a patient any prophylactic, diagnostic or therapeutic agent, such as a vaccine, a splint, roentgen rays, or an anesthetic or any other drug. A person who does any of these acts without authority commits a battery or a trespass, or both, for which, according to the circumstances of the case, he may be fined or imprisoned or made to pay damages. Even after the death of a patient his right to freedom from interference automatically passes in a modified form to his spouse or to his next of kin, and any unauthorized interference with his dead body exposes the offender to a suit for damages by the person entitled to its custody. My purpose in this paper is to show, so far as the limits of available space permit, what constitutes lawful authority for the doing of these acts, the performance of which plays so large a part in the daily work of the medical profession.

"Authority" as used by the courts means primarily inclusion of the particular act to be done within the scope of the employment contract. Normally, "authority" is obtained by the physician from his patient by means of oral or written consent.

Generally speaking, if consent to the doing of a particular act is obtained, no legal liability for the doing of that act can arise, but this is not always true, for as Doctor Woodward states:

Consent, however, even by the patient himself, is not necessarily valid. Consent may be invalid (1) because it undertakes to authorize an unlawful act or an act contrary to public policy, or (2) because it comes from a person who has no lawful right to give consent, or (3) because it was obtained by misrepresentation or fraud.

Doctor Woodward's article contains a discussion of the various conditions which may make a consent invalid. Every member of the Association is urged to read the article carefully. If it has been read once before, read it again. It will do no harm and may prevent an unfortunate experience to refer to the article every time there is the least doubt concerning a contemplated physical examination, treatment, or operation.

111 Sutter Street.

†Editor's Note.—This department of CALIFORNIA AND WESTERN MEDICINE, containing copy submitted by Hartley F. Peart, Esq., will contain excerpts from and syllabi of recent decisions and analyses of legal points and procedures of interest to the profession.

SPECIAL ARTICLES

SOME INTERESTING NEWSPAPER ITEMS*

In the current issue of CALIFORNIA AND WESTERN MEDICINE, editorial comment is made on a Qualifying Certificate law and on cultist healing art boards. In connection therewith, practitioners of non-sectarian medicine may be interested in reading the press dispatches of date of July 23, from the state convention of one of the groups to which reference was made:

From the Los Angeles Daily News:

EQUALITY STEP TAKEN BY OSTEOPATHS

Osteopaths opened a drive to obtain standing for nature healers, Christian Science practitioners, chiropractors, and osteopaths equal to that of physicians at yesterday's session of the California Osteopaths' Association annual convention in Pasadena.

Dr. Glen C. Cayler, chairman of the Association's Legislative Committee, said all labor and other groups would be asked to cooperate in a three-point program which the Association plans to carry to voters by Initiative measures.

The program includes changing the Workmen's Compensation Act to enable employees to choose nature healers, Christian Science practitioners, and others, to attend them, opening of county hospitals to pay patients, and redefinition of the terms "physicians" and "surgeons" by law to include all healing practitioners.

The Association will also consider campaigning for a compulsory health insurance, to be administered by a board composed of all those in the healing profession.

OSTEOPATHS PLAN DRIVE

Delegates Aim Blow at "Selfish Attacks" of Organized Medicine

Pasadena, June 23. (Exclusive).—Plans for a State-wide campaign by osteopaths, naturopaths, and chiropractors against asserted "selfish attacks by organized medicine" were announced today at the California Osteopathic Association's convention.

Dr. Glen D. Cayler of Los Angeles was cheered by the delegates after he declared that as soon as California groups with "common interests" band together "true medical freedom" for the United States will be won.

Program Outlined

The speaker, chairman of the Osteopaths' Legislative Committee, won support for the following three-point program:

1. Passage of an amendment to the Workmen's Compensation Act, giving all injured employees the right to select any physician.
2. Passage of an amendment to the State Medical Practice Act that will give doctors of osteopathy holding physicians' and surgeons' certificates complete equality under the law with doctors of medicine.

Plea for Hospitals

3. Open county hospitals for admission of "pay" patients with free choice of physicians, or establish compulsory health insurance to include salary groups below \$1,500, giving free choice of physician, and setting up a board of all interested professions.

Doctor Cayler asserted that if this three-point program is not inaugurated soon, osteopaths and others with like interests are planning to carry the fight to the people by referendum.

Pending Bills Cited

"While organized medicine has pilloried us at every turn," he said, "we have gone about our business. But the time for docility is past. The freedom of a man to place his life in the hands of a physician of his choice will otherwise be stifled.

"Awaiting Governor Merriam's signature are three bills that eventually will give medical doctors alone the right to treat patients. We must push this joint counter-attack with full vigor, for organized medicine has ruled, governed and unceasingly belittled those outside its realm!"

From the Los Angeles Examiner:

OSTEOPATHS WAR ON MEDICAL CODES

Pasadena, June 23.—A three-point fight for legislative recognition will be voted on tomorrow by the California Osteopathic Association as it takes up the report of a legislative committee headed by Dr. Glen D. Cayler.

* For editorial comment, see page 3.

Under the proposal naturopaths, chiropractors, and Christian Science practitioners would be invited to join the osteopaths in a "war" against medical associations. The plan is as follows:

1. To obtain an amendment to the State Medical Practice Act that will define "physician and surgeon" in such manner that a doctor of osteopathy, holding a physician and surgeon certificate, will be eligible under the provisions of any of the California codes.

Compensation Act

2. Cooperating with all interested groups in an amendment to the Workmen's Compensation Act to give the employee free choice of his physician.

3. Cooperating with farm bureaus, labor groups, teachers' organizations, and others, toward opening county hospitals to pay patients with free choice of physician, or establishing a compulsory health insurance law to include the lower income salary groups (up to \$1,500 annually) giving free choice of physician and providing an administrative board of representatives of all interested professions.

From the Pasadena Star News (June 23):

MEDICAL ACT AMENDMENT SOUGHT

"War of Freedom" Is Launched

California's long-smoldering flames of threatened warfare, with medical associations on one side engaging in bitter battle with a large cooperative army of osteopathic physicians, naturopaths, Christian Science practitioners, and chiropractors, burst forth today when Dr. Glen D. Cayler of Los Angeles, Chairman of the Legislative Committee, asked six hundred delegates attending the California Osteopathic Association convention to accept immediately and "pursue militantly and aggressively" the Committee's three-point plan of "battle for medical freedom" and then simultaneously broadcast a State-wide appeal for help from all groups interested.

The convention, in its third day in session in the Vista del Arroyo Hotel, thus commenced a "war" that will rage from one end of the State to another, with every prospect of spreading nationally since other states are almost certain to follow California's lead, it was said. The three-point plan is:

Three Points Listed

1. To pass an amendment to the State Medical Practice Act that will define "physician and surgeon" in such manner that a doctor of osteopathy holding a physician and surgeon certificate will be eligible under the provisions of any of the California Codes, regardless of the provisions in the code.

2. Cooperating with all interested groups in an amendment to the Workmen's Compensation Act giving the employee free choice of physician.

3. Cooperating with the farm bureaus, labor groups, teachers' organizations, and others, toward opening county hospitals to pay patients with free choice of physician, or establishing a compulsory health insurance law to include the lower income salary group only (up to \$1,500 annually) giving free choice of physician and providing an administrative board of representatives of all interested professions.

Appeal to People

Doctor Cayler, in explaining the purpose of the proposals, followed the reading of the concrete points by emphatically declaring to the hushed audience that if the program was lost that the committee proposed carrying their fight to the people by an initiative referendum. Then the convention floor broke into wild cheering.

Doctor Cayler said that the program was mapped because organized medicine had ruled, governed and unceasingly attacked those outside its realms. While no mention was made by the chairman of State Senate Bills 781, 782, 783, the consensus of the delegates was that the passage of these bills at what was said to be a "jammed" session of the recent California Legislature in Sacramento, hastened the declaration of "war." These bills are on Governor Frank F. Merriam's desk awaiting action.

As amendments to the State Medical Practice Act the bills allow injunction powers to be used against alleged violators of the Act upon filing of a complaint by either the Medical or Osteopathic Board of Examiners. Opponents of the bill have flooded the Governor's desk with telegrams and letters urging his veto, claiming the bills gave the Board autocratic, dictatorial and unwarranted powers. Moreover, they claim, that with such bills made laws that it would eventually mean no one but medical doctors could practice in the State of California. And these medical doctors would be members of various medical associations of societies, to which other professions are not admitted.

The delegates were asked to defer their vote until late today to enable them to study carefully the three proposals.

PACIFIC COAST ABORTION RING

San Francisco, California,

May 18, 1937.

Re: Pacific Coast Abortion Ring

To the Editor:

Enclosed please find California Appellate Decisions, May 4, 1937, wherein is printed an important decision in the case of *People vs. R. L. Rankin*, from which you will note that a new trial has been granted to James Beggs, M.D., Valentine St. John, M.D., and Jesse C. Ross, M.D., whereas William A. Byrne has been denied a new trial.

You will note that the decision is based on two interesting points:

1. That a conviction cannot be sustained upon the testimony of an accomplice.

2. That Count No. 7 of the indictment of William A. Byrne did not state that the woman involved was *pregnant* and hence this count was dismissed.

Effective September 15, 1935, Section 274 of the Penal Code was amended by striking out the reference to pregnancy, hence if the indictment had been brought after September 15, 1935, such a judgment of the Appellate Court would not have been possible.

We believe the enclosed opinion is worthy of publication in CALIFORNIA AND WESTERN MEDICINE.

Very truly yours,

C. B. PINKHAM, M.D.,

Secretary-Treasurer, State Board of
Medical Examiners.

* * *

(Note: The Decision to which Doctor Pinkham refers is printed below.)

* * *

COURT'S DECISION

CALIFORNIA APPELLATE DECISIONS

Crim. No. 2943. Second Appellate District, Division Two.
April 23, 1937

The People of the State of California, Plaintiff and Respondent, vs. R. L. Rankin, George E. Watts, John A. Creeth, J. O. Shinn, William A. Byrne, Valentine St. John, H. L. Houston, Bessie McCarthy, Grace Moore, Lillian Wilson, Jessie Radcliffe, James Beggs, Beatrice Bole, Jesse C. Ross, Violette Pellegrini, W. Norman Powers and J. D. Perry, Defendants; R. L. Rankin, William A. Byrne, Valentine St. John, James Beggs, and Jesse C. Ross, Appellants.

[1] Criminal Law—Abortion—Accomplice—Corroboration.—A conviction cannot be sustained upon the testimony of an accomplice, unless it be corroborated by other evidence which tends to connect defendant with the commission of the offense charged in the indictment, and the corroborative evidence necessary to comply with this requirement must of itself without the aid of the accomplice's testimony connect or tend to connect defendant with the commission of the offense charged; and in this prosecution for violation of Section 274 of the Penal Code, where the record was completely devoid of any evidence, even slight, which tended to connect appellants with the crimes of which they were convicted, after eliminating the testimony of accomplices, the necessary corroboration was lacking.

[2] Id.—Abortion—Pleading.—In such prosecution, in order to state a public offense arising from the violation of Section 274 of the Penal Code, it was necessary to allege that the abortion was committed upon a woman that was pregnant.

[3] Id.—Statutes—Words and Phrases.—In such prosecution, the contention that the words "procure the miscarriage of such woman" as used in Section 274 of the Penal Code did not convey a definite and certain meaning and was, therefore, unconstitutional, was without merit.

Appeal by defendants from judgments of the Superior Court of Los Angeles County, Arthur Crum, Judge, of conviction of a conspiracy to violate Section 274 of the Penal Code and from orders denying motions for new trial. Affirmed and reversed with directions.

For Appellant R. L. Rankin—Rosecrans & Emme, Bayard R. Rountree.

For Appellant Byrne—R. E. Parsons, Jerome O. Hughes.

For Appellant Valentine St. John—Charles A. Thomasset.

For Appellant James Beggs—Clarence W. Hull; Sherman & Sherman, by Clarence W. Hull.

For Appellant Jesse C. Ross—Abe Richman.

For Respondent—U. S. Webb, Attorney-General, by Bayard Rhone, Deputy Attorney-General; Euron Flitts, District Attorney, Los Angeles County, by V. L. Ferguson, Deputy District Attorney.

Defendants were accused by the grand jury of the county of Los Angeles of the crime of conspiracy to violate Section 274 of the Penal Code, a felony, and in eight separate counts of having committed abortions. Defendants were tried jointly before a jury, whose verdicts were:

(1) Guilty:

Counts I, II, V, VII, and IX—R. L. Rankin, George E. Watts, J. O. Shinn, William A. Byrne, Grace Moore, Lillian Wilson, James Beggs, Jesse C. Ross.

Counts I and V—John A. Creeth, Valentine St. John.

Counts I, II, and V—Violette Pellegrini.

(2) Not guilty:

All counts—Jessie Radcliffe, J. C. Perry.

Defendants H. L. Houston, Bessie McCarthy, and Beatrice Bole were not apprehended and defendant W. Norman Powers entered a plea of guilty to Count I of the indictment and testified on behalf of the State.

Defendants James Beggs, William A. Byrne, R. L. Rankin, Jesse C. Ross, and Valentine St. John alone appeal from the judgments and orders denying their motions for a new trial.

The appeal of defendant R. L. Rankin has heretofore been dismissed at his request.

Viewing the evidence most favorable to the prosecution (*People vs. Dukes*, 90 Cal. App. 657, 659), the facts in the instant case are:

Defendants R. L. Rankin and George E. Watts owned, operated, and directed a series of offices, extending from Seattle, Washington, to San Diego, California, for the purpose of illegally performing abortions. The remaining defendants, with the exception of those who were acquitted by the jury, were employed by them in various capacities in connection with the conduct of their illegal business. In the course of their business, and in pursuance of their conspiracy, abortions were performed upon Gladys Duckworth, Peggy Nowell, and Josephine Peacock, as alleged in Counts II, V, and IX of the indictment.

A

[1] Each appellant urges reversal of the judgments on the ground that there is no substantial corroboration of the testimony of his accomplices to show his participation in or connection with any of the crimes of which he was convicted.

The law is settled in California that a conviction cannot be sustained upon the testimony of an accomplice, unless it be corroborated by other evidence which tends to connect defendant with the commission of the offense charged in the indictment (Section 1111, Penal Code), and it is equally clear that the corroborative evidence necessary to comply with this requirement must of itself, without the aid of the accomplice's testimony, connect or tend to connect defendant with the commission of the offense charged. (*People vs. Kempley*, 205 Cal. 441, 455; *People vs. Janssen*, 74 Cal. App. 402, 406; *People vs. Rokes*, 88 Cal. App. Dec. 317, 318.)

Applying the foregoing rules to the instant case, we find, with reference to the appellants Beggs, Ross, and St. John, that, after eliminating entirely the testimony of their accomplices, the record is completely devoid of any evidence, even slight, which connects or tends to connect any of them with any of the crimes of which they were convicted. Since the judgments as to these appellants must be reversed for the foregoing reason, it is unnecessary for us to consider the other contentions which they have advanced.

With reference to appellant William A. Byrne, we find a different situation. An examination of the record discloses that, after eliminating the testimony of his accomplices, there was substantial evidence considered in connection with such inferences as the jury may have reasonably drawn therefrom to connect him with the commission of the offense charged, thus furnishing the necessary corroboration to the testimony of his accomplices. One example of such corroborative evidence is found in the testimony of Geraldine Gerding, secretary to the manager of the Ocean Center Building in Long Beach, who it is conceded was not an accomplice, to the effect that appellant Byrne, about July 29, 1936, paid rent for rooms used by some of his coconspirators in that city for the purpose of performing abortions. There is ample evidence of a similar nature; however, since no useful purpose would be subserved by setting the same forth in extenso, we refrain from further discussion of it. (*Thatch vs. Livingston*, 13 Cal. App. [2d] 202, 56 Pac. [2d] 549; *Koberle vs. Hotchkiss*, 8 Cal. App. [2d] 634, 48 Pac. [2d] 104; *Leavens vs. Pinkham & McKevitt*, 164 Cal. 242, 245, 128 Pac. 399.)

B

Appellant Byrne relies for reversal of the judgments upon these additional propositions:

[2] First: Count II of the indictment did not charge a public offense.

Second: Section 274 of the Penal Code is unconstitutional in that it fails to inform a person charged thereunder with reasonable certainty as to what acts or actions are prohibited by it.

Appellant Byrne's first proposition is valid. On April 29, 1935, Section 274 of the Penal Code read as follows:

"274. Administering Drugs, etc., With Intent to Produce Miscarriage. Every person who provides, supplies, or administers to any pregnant woman, or procures any such woman to take any medicine, drug, or substance, or uses or employs any instrument or other means whatever, with intent thereby to procure the miscarriage of such woman, unless the same is necessary to preserve her life, is punishable by imprisonment in the state prison not less than two nor more than five years." (Italics added.)

Count VII of the indictment read as follows:

"Count VII

"For a further and separate cause of action, being a different offense of the same class of crimes and offenses as the charges set forth in Counts II, III, IV, and V hereof, and connected in its commission with the charge set forth in Count I hereof, the said defendants, R. L. Rankin, George E. Watts, John A. Creeth, G. O. Shinn, William A. Byrne, Valentine St. John, H. L. Houston, Bessie McCarthy, Grace Cole, Lillian Wilson, Jessie Radcliffe, James Beggs, Beatrice Bole, Jesse C. Ross, Violette Pellegrini, W. Norman Powers and J. C. Perry, are accused by the Grand Jury of the County of Los Angeles, State of California, by this indictment, of the crime of abortion, a felony, committed prior to the finding of this indictment, and as follows:

"On or about the 29th day of April, 1935, at and in the County of Los Angeles, State of California, the said defendants, R. L. Rankin, George E. Watts, John A. Creeth, G. O. Shinn, William A. Byrne, Valentine St. John, H. L. Houston, Bessie McCarthy, Grace Cole, Lillian Wilson, Jessie Radcliffe, James Beggs, Beatrice Bole, Jesse C. Ross, Violette Pellegrini, W. Norman Powers and J. C. Perry, did provide, supply, administer, procure, use and employ an instrument upon the person of one Dorothy Woods, a woman, with the willful, unlawful and felonious intent then and there and thereby to procure the miscarriage of the said Dorothy Woods, said use and employment of said instrument to procure said miscarriage of said Dorothy Woods, a woman, not then and there being necessary to preserve the life of the said Dorothy Woods."

It is to be noted that the Penal Code section above quoted prohibited the aborting of a "pregnant" woman, unless the same was necessary to preserve her life. Count VII of the indictment, which attempts to charge the defendants with the commission of an abortion upon Dorothy Woods, failed to allege that she was "pregnant." Under Section 274 of the Penal Code, as it read April 29, 1935, it was incumbent upon the people to allege and prove that the woman upon whom the abortion was performed was pregnant. (*People vs. DeVaughan*, 105 Cal. App. 516, 518.) Therefore Count VII was fatally defective in this respect and failed to state a public offense.

[3] Appellant Byrne's final proposition is untenable. His entire argument is directed to the point that the words "procure the miscarriage of such woman" do not convey a definite and certain meaning. "Miscarriage" is thus defined in Bouvier's Law Dictionary, Volume II, page 2221:

"The expulsion of the ovum or embryo from the uterus within the first six weeks after conception. Between that time, and before the expiration of the sixth month, when the child may possibly live, it is termed abortion. When the delivery takes place soon after the sixth month, it is denominated premature labor. But the criminal act of destroying the fetus at any time before birth is termed, in law, 'procuring miscarriage.'"

An almost identical definition will be found in Cyclopedic Law Dictionary, page 662, and substantially the same definition is given in each of the modern dictionaries of the English language. It is, therefore, evident that the phrase as used in the statute was sufficiently explicit to inform persons of common intelligence and understanding of the acts which were prohibited.

The judgments and orders denying the motions for a new trial relative to appellants James Beggs, Jesse C. Ross, and Valentine St. John are and each is reversed, and a new trial is ordered.

The judgments and orders relative to William A. Byrne on Counts I, II, V, and IX are and each is affirmed, and the judgment and order on Count VII as to this appellant are and each is reversed.

We concur:

CRAIL, P. J.
WOOD, J.

McCOMB, J.

DEPARTMENT OF PUBLIC HEALTH: BUREAU OF REGISTRATION OF NURSES—ANNUAL REPORT*

In addition to the general office work, interviews, and inspections of schools of nursing during the past year, the chief project of the Bureau of Registration of Nurses has been the completion of the revision of the three-year curriculum. This revision has extended over a period of two years because of its comprehensive nature. Three meetings, each year, of the Advisory Committee have been devoted to this problem. All recommendations made by this committee concerning minimum requirements for ward practice and class work have been adopted by the California State Board of Public Health. The plan, in general, provides for a preliminary period of four to six months, depending upon whether or not the prenursing course is required for admission. The main part of the course is devoted to the services included in the former twenty-eight months' course with the addition of experience in the nursing care of communicable diseases or tuberculosis. Instead of the "advanced" courses formerly given, four to six months are now devoted to special services, the experience being given at the time deemed most suitable, rather than at the end of the course. Visiting nursing, outpatient clinics, psychiatric, and orthopedic nursing have proved popular. For this three-year curriculum, the minimum amount of class work in schools admitting students without a college prenursing course is 780 hours. In addition to these recommendations, the California State Board of Public Health has also adopted a regulation that a minimum of forty-four hours a week must be devoted to the class work, conferences, and ward practice of this course. Information concerning these changes in curriculum has been sent to the schools in the form of news bulletins, and plans are being made to issue a printed booklet in the early fall.

During the session of the legislature which has recently adjourned, four bills relating to the work of the Bureau were introduced. Two of these were "codified" bills. At the previous session of the legislature, a code commission was appointed for the purpose of compiling existing laws in similar form. The registration act and act for the training of attendants which have been passed are, therefore, the same in actual content as before. Copies of the registration act in its new form will be published in the early summer. A third bill was introduced by the Finance Department. It provides for the use of \$15,000 of the Nurses' Registration Fund to pay for office space in a new building to be erected by the Department of Vocational Standards. This will make it possible for the Bureau to have additional office space, which is badly needed. The fourth bill provided for the exemption of schools of nursing, connected with medical colleges, from several requirements of the registration act. This bill was withdrawn before a committee meeting was held.

The usual three State Board examinations have been conducted. After the July examination, a comprehensive analysis was prepared and sent to each school of nursing in place of the usual meeting for discussing the questions. Meetings were held in Sacramento, San Francisco, and Los Angeles after the November and March examinations. An analysis of each examination was also published in the *Pacific Coast Journal of Nursing*. Following the March examination, a detailed study was made of all applicants graduating from California schools of nursing who were taking the examination for the first time. Graphs were then prepared showing the highest and lowest score of each school, as well as the mean. These graphs were sent to the schools in order that each one might compare its scores with those of other schools in the State. The mean of each school for each subject was also calculated. Mimeographed sheets were then prepared, showing the range from the highest to the lowest grade. These were also sent to each school with its grades indicated. This was a time-consuming piece of work, but proved to be very worth while because this type of comparison has proved more beneficial to the schools than one making possible only the

* Report for the period, June 1, 1936 to June 1, 1937. By Helen F. Hansen, R.N., Chief, Bureau of Registration of Nurses.

Report given at the convention of California State Nurses' Association.

comparison of the school mean with that of the whole group.

The schools appearing in the highest 25 per cent, namely, Mercy College (Sacramento), Queen of Angels, St. Francis, Bishop Johnson College, Knapp College, St. Vincents, and San Diego County, showed far less divergence in grade than did those appearing in the lowest quarter. The highest grade in each subject was obtained by a school in this upper group, with the exception of surgical nursing, in which the highest grade was obtained by Mercy College of Nursing, San Diego.

The number of nurses from other states registering in California continues to be very heavy. During the last calendar year, this number was the highest in the history of the Bureau, reaching 1541. It appears that this number will be greatly exceeded during the present calendar year, as 1,148 certificates have already been issued since the first of January. Renewals are also continuing to be very heavy, with over eight hundred having been issued so far this year than for all of last year. This increase in volume of work has proved to be a great strain on the Bureau, and efforts are being made to obtain additional personnel to assist with it. With this increase in renewals and registration, there has been a corresponding increase in income. The revenue for the fiscal year which will close June 30 is estimated at about \$47,000, with expenditures of about \$24,500.

Studies of the teaching of medical nursing and special diets have been continued. Because of the fact that there has been no permanent inspector in the southern part of the State for the greater part of the year, this work is still in progress. Individual reports have been sent to each school, and general summaries with recommendations will be prepared upon its completion. The inspector in the northern part of the State has spent the greater part of the year in connection with this work, taking care of some of the southern schools also. Whenever possible, classes in the service being studied have been visited in each school. This has required several visits for each report, as well as a great deal of time in compilation, because of its detailed nature. In all, there have been made thirty-six class visits, twenty-seven studies of facilities for teaching special diets, and three for the teaching of medical nursing. Five inspections of other services have also been made.

There has been a decided increase in the number of requests for talks at high schools and colleges. It has not always been possible to fill all of these requests because of the heavy demands of the offices. The Los Angeles and San Francisco offices have taken care of 1,239 office interviews during the year. Both inspectors have attended as many meetings of nursing organizations as their itineraries would permit. The inspector in the northern part of the State has also acted as chairman of the Program Committee for the convention of the California State Nurses' Association.

The Chief of the Bureau has made seventy-three hospital visits during the last year. This has been slightly less than for the previous year because of the great increase in office interviews and applications. Only six visits have been made to colleges for this same reason. Frequent office hours have been held in Los Angeles and San Francisco, as well as at Sacramento. During this period, 958 individuals have been interviewed. Meetings of nursing organizations have been attended in San Francisco, Los Angeles, and Sacramento, as well as meetings of the Board of Directors of the California State Nurses Association, Sacramento County Nurses' Association, and the California League of Nursing Education. Assistance has also been given with the founding of the "Northern Valley League of Nursing Education" to promote greater interest in this work in Sacramento and Stockton.

Plans for the next year include more visits to junior and state colleges and a comprehensive study of the health program in schools of nursing, as well as the teaching of pediatric nursing. . . .

The clerical personnel in the three offices has continued, without exception, to give devoted service to the Bureau. Both the San Francisco and Los Angeles offices have been able to assist with typing and mimeographing for the Sacramento office because of the reduction in number of studies in schools of nursing.

The Chief of the Bureau has felt very fortunate during the difficulties of the past year to have had the loyal assistance of the whole Bureau personnel as well as the readiness of the director of the Department and the chairman of the Nursing Committee to share in the carrying of the many responsibilities.

MEDICAL ISSUES IN GREAT BRITAIN

The annual meeting of the British Medical Association commences July 16. In preparation for this meeting, the annual report of the Council appears in the supplement to the *British Medical Journal* for April 24.

The subjects treated and the attitudes taken show a close similarity to those that are interesting members of the medical profession in the United States. There has been a steady increase in the development of public medical services, until the number now in operation is sixty. This is a form of voluntary insurance supplementary to the compulsory plan and at least partially controlled by the British Medical Association. It is confined to persons with incomes approximately between \$1,200 and \$2,500 per annum.

There is conflict between the representatives of the Ministry of Health and the Association as to the scale of fees for physicians called in by midwives under the Midwives Act, and the meeting is asked to support the higher schedule of fees proposed by the Council.

INSURANCE CAPITATION FEE

"For several years," says the Council, "there has been a growing feeling that the capitation fee of 9s. awarded by a Court of Enquiry in 1924 has become inadequate for the services which an insurance practitioner is called on to give to an insured person. During the past twelve years there has been a substantial increase in the volume of work and in the content of the service. The 1936 Annual Conference of Local Medical and Panel Committees instructed the Insurance Acts Committee to proceed in the matter and, when the preparation of the case to be submitted on behalf of insurance practitioners had reached an advanced stage, a formal application was submitted to the Ministry of Health. The Minister, himself, then met a deputation from the Committee. He intimated that, in his view, a flat rate substantially below the present figure could well be justified. At the same time he agreed that, both sides holding opposite views, the question was one which could best be settled by arbitration and he undertook to make the necessary arrangements. . . ."

Parliament is now considering the extension of insurance to "employed juveniles between school-leaving age and sixteen years." The Ministry is trying to set the capitation fee for such workers lower than that for adults. "At a Special Conference of Local Medical and Panel Committees called for January 7, 1937, the following resolutions were passed unanimously, and subsequently transmitted to the Ministry of Health:

"That the offer of the Minister of health of a capitation fee of 7s. 6d for medical attendance on insured persons under sixteen years of age be rejected.

"That this Conference recommends insurance practitioners to decline service for the provision of medical benefit for insured workers under sixteen years of age at the terms offered by the Minister of Health.

"That in view of the inadequacy of the existing capitation fee, and pending the result of negotiations for its increase, this Conference is not prepared to accept for attendance on insured workers under sixteen years of age a capitation fee less than that which is paid for adult insured workers.

"That the Insurance Acts Committee be authorized to take action in the light of the decisions reached by the Conference."

DUTIES AND ETHICS OF INDUSTRIAL MEDICAL PRACTICE

The Council, in an appendix to its report, sets out the following list of duties which may properly be undertaken by industrial medical officers, when so required:

"1. Examination of applicants for employment and advice as to their selection.

"2. Immediate treatment of medical and surgical emergencies occurring at the place of employment.

"3. Examination of persons returning to work after illness or incapacity.

"4. Periodic examination of persons exposed to special hazards.

"5. Responsibility for the efficiency of the nursing and first-aid personnel and equipment.

"6. Advice to the management regarding:

"(a) The hygiene of the factory.

"(b) The health conditions of the workers.

"(c) The occurrence and risk of dangerous hazards.

"(d) The accident-prevention arrangements.

"(e) Factory legislation concerning health and safety and the special diseases to which the particular industry exposes any worker.

"(7) Maintenance of close touch with the management with a view to insuring that conditions are such as to produce the highest degree of mental and physical welfare of the workers.

"8. Continued observation of all young persons with recommendation where necessary for the provision of free meals or milk.

"9. Continued observation of all persons returning to work after prolonged illness.

"10. The medical supervision of canteens to insure the cleanliness, good quality, and physiological adequacy of the food.

"11. Advice to the works councils, welfare departments, benevolent fund committees, etc., on any matter affecting the health of the workers.

"12. The arranging and carrying out of such educational work in respect of the health and fitness of the workers as may be desirable and practicable.

"13. Ready accessibility to employees for medical advice on matters relating to their work.

"14. Encouragement of supervisors to report signs of ill health in any of their workers.

"15. Advice to the management regarding fire and air raid precautions."

What is essentially a special ethical code to secure the enforcement of the regulations as to duties is also recommended. Some of the more significant sections of this code follow:

"1. The industrial medical officer shall render such emergency or first-aid treatment as is required at the place of employment and shall inform the worker's own doctor of any treatment given. Where further treatment is deemed necessary, the worker shall be instructed to consult his own practitioner.

"2. Where there are special facilities or equipment and suitable transport arrangements are available, if it is in the interests of the patient, continuing treatment may be given at the factory clinic with the consent of, and in consultation with, the worker's own practitioner. . . .

"4. The industrial medical officer shall not provide treatment in cases of disability, save in such instances as may be covered by an understanding with a committee representative of the local medical profession or where there is an *ad hoc* agreement with the worker's own practitioner. Such treatment shall be given only with the consent of the worker.

"5. The industrial medical officer shall consider and advise on the occupation of any worker whose duties appear to be too heavy or otherwise unsuitable, and where necessary he shall consult the worker's own doctor.

"6. The industrial medical officer shall, after communication with the worker's medical attendant, (a) examine and advise concerning those workers engaged in hazardous or arduous occupations; also those about to be transferred to heavy or dangerous occupations; and (b) examine and report to the works management on those workers who appear suitable for early pension or retirement or in regard to the continuance of invalidity payments.

"7. The industrial medical officer shall not carry out domiciliary treatment.

"8. A whole-time industrial medical officer shall not treat any member of the worker's family who is not employed at the factory.

"9. A part-time industrial medical officer shall not utilize his position to influence the worker to choose him as medical attendant or family doctor.

"10. The industrial medical officer shall not, except in an emergency, or where a prior understanding with the

local practitioners is in operation, send any employee direct to the hospital. Where he considers attendance at the hospital to be necessary or advisable, he shall refer the employee to his own medical attendant and may make a suggestion to this effect to the latter.

"Where, in an emergency, the industrial medical officer sends a worker to hospital, he shall advise: (a) the relatives (if the patient is detained); and (b) the worker's medical attendant. . . .

"12. The industrial medical officer should, where possible, respond to any invitation to meet the worker's practitioner in consultation.

"13. Except in emergency, the industrial medical officer shall not carry out any individual preventive measure without the individual consent of the worker, and prior agreement with the worker's medical attendant. He shall in no way associate himself with experiments which involve the active participation of the workers without their consent and the prior notification of the worker's doctor.

"14. The medical records of the workers maintained by the industrial medical officer are confidential documents; they must remain in the custody of the industrial medical officer or of his deputy. Access to them must not be allowed to any other person save only to another registered medical practitioner and then only at the request or with the consent of the worker."—*Journal of the American Medical Association*, June 5, 1937.

COUNTY HOSPITALS: THEIR ADMISSION SCOPE*

By G. W. WALKER, M.D.
Fresno

This subject was suggested to me as proper for consideration—a change possibly desirable of achievement, to prevent worse legislation by taking the wind out of the sails, so to speak, of the proponents of something far more vicious. If we admit that it is vicious, but simply less vicious than something else, that is one thing; but if we hope to have it enacted as a piece of constructive legislation, that is another.

Being a physician, I am more accustomed to consider professional subjects. The title of this paper was given to me ready-made. Please bear with me if I seem ambitious to discuss government policies. The title dictates it. Some years ago, at a medical meeting, one of the prominent members of our profession, wishing to be politic but also desirous of "putting over" a proposition making a radical change, took the floor several times to speak for his idea, always preceding his remarks with, "Now, I am entirely neutral in this matter," when he would launch into a discussion on the side he strongly favored. After numerous such passages, Dr. John Graves got upon his feet and said, "I am just as neutral as my esteemed friend, only I am neutral on the other side." Like Doctor Graves, consideration of the evidence on this subject makes me strongly one-sided.

REACTION TO DOLES

Experience teaches that whenever public funds are offered to assist people, a request soon changes to a demand, and that doles, to the extent that they are doles, lead to moral deterioration. What is given to a group as a concession soon is considered by them to be their inherent right, and is always looked upon as too little, after which turmoil follows over drives to get more.

A committee of the California State Senate two years ago investigated widely the cause of the high taxation we have, and which is mounting, and the possibility of reducing it. A staggering deficit faced them. A member of that committee talked to a civic body and told us of their conclusion, that taxes mount because government is doing so much more all the time for the governed. Whenever a suggestion for elimination of something was made, a vigorous protest was promptly made by the group receiving that State service; and instead of any reduction being possible, overwhelming demands were continually being made to

*Opening county or other tax-supported hospitals to non-indigent patients of limited means for part pay under the supervision of their private physician. A discussion.

extend services already in existence—a group, at a time, demanding special favors for itself.

A British economist, Sir George Paish, recently stated that at the present trend the world is going bankrupt, for it is simply spending more than it is making. Nationally, and in the subdivisions, we are doing so. Such bankruptcy leads toward too high-tax levels, confiscation, repudiation, economic chaos, loss of confidence in government, and general peril.

America was developed to its enviable position on lower taxation, and more self-reliance than the present trend. While it always cared for the indigent, those who received State aid were judged to have fallen off the bottom rung of the social ladder, so less of it was formerly requested. But increased State aid makes a different psychology; and a disregard for self-respect and self-reliance. Let us not be a party to a plan to help those who can better help themselves.

COUNTY OR CHARITY HOSPITALS

Our County Medical Association at one time asked the Board of Supervisors to change the name of our General Hospital to the County Charity Hospital. There was an organization known as the Unemployed League which promptly intervened, as they did not want any such stigma. They demanded that it must *not* be evident that when they went to the County Hospital they were recipients of charity.

If the State gives part of the hospital care for nothing to groups able to take care of themselves, soon they will ask that it be entirely free, and next that they receive their medical care for nothing. Then would loom the question of how much their means must be limited for such admission. There would be agitation for extension of limits—note the frequently made statement of the agitators that they expect to get one concession, then another, added to the Old Age Security Law, until unlimited State medicine and hospitalization are obtained. In passing, we might ask well-intentioned advocates of Old Age Security legislation if bearable taxation and reasonable hope for future stability in government are not requisites of first importance, even ahead of collections and disbursements?

PAYMENT MAKES FOR SELF-RESPECT

A more healthful situation exists when people earn and pay their own way rather than expect the government to care, or even partly care for them. I quote a hospital administrator, Richardson,¹ who says: "The average person would like to pay his own bills. Unfortunately there has always been an element—and that element is perhaps increasing—which is quite willing to let someone else assume responsibility. Certainly, people should be taught and urged constantly to assume the responsibility of their own medical service, including hospital accommodations, just so far as it is possible for them to do so."

In large centers, endowed hospitals have their charity wards and patients who pay their own way; some paying part because of limited means, but in that the ultimate dictator of policy is a private board which can make its decisions unhampered by political wire-pulling. The ultimate control of tax-supported institutions is by a board depending for their tenure upon popular vote. Popular support is best kept by keeping down turmoil, by giving a too vigorous contender what he wants, even though it is more than can be given to the whole public.

AMERICAN PLAN OF HOSPITALIZATION

To quote Richardson¹ again: "It is much more than a coincidence that the American plan of hospitalization has grown up to be the most extensive and the most efficient possessed by any country in the world. In this country there are quite a number of splendidly built and wonderfully equipped public institutions, but unfortunately the administration of some of these hospitals is very much hampered and harmed by the fact that they are publicly owned hospitals. Economically, it is wiser to subsidize some private institution for the care of the indigent sick suffering from acute surgical and medical conditions. It would be too bad to see the State largely assume the responsibility.

SHALL THE HOSPITAL SET-UP BE RECAST?

"To recast the whole general hospital program, to meet a desire on the part of some people to throw all the burden on the city or State, would be most unfortunate, not only from an economic standpoint, but also because the quality of service would sooner or later deteriorate." In most lines private institutions are more flexible than public ones in meeting individual requirements.

To get something for a patient of the private hospital, one can telephone and have every reasonable request granted. Only rarely do we fail to arrange the exact details we want—possibly an operating hour not precisely to suit—but this is only rarely.

Is there need for this change? Is there a possibility that a staggering hospital bill may overwhelm a person of limited means at an unexpected moment, and no way to fend it off? No, there is a practical and easily possible way of preventing that—arranged by the hospitals. There are now established over a large part of the country, including California, and growing everywhere rapidly, well-arranged hospitalization insurance plans. For an amount equal to less than the cost of half-dozen packages of cigarettes per month, hospital service insurance can be gotten that will give the patient free access to the hospital of his choice.

Shall tax grants provide the tobacco at limited cost to those of limited means? The economic burden of tobacco cost is heavier than that of hospitalization. Page the Foundations! Get relief for us!

HOSPITALIZATION INSURANCE

People of such circumstances that they could be ruined by the hospital bill in an unpredictable acute medical or surgical condition should be taught by propaganda, advertising or popular talks, and every practical means, that there is now such an insurance plan in existence. About one person in fifteen per year goes to the hospital. Fire loss does not happen nearly so often, yet fire insurance is nearly universal. Therefore, hospitalization, being more nearly predictable than fire loss, insurance against it should be popularized. Let us encourage that instead of tax-supported hospitalization extension.

Just as a house cannot be insured after a fire starts, so hospitalization insurance cannot be gotten after one is sick. This insurance plan involves no new taxes. It is cheaper than care by the State, even after crippling taxation has built more hospitals at public expense, to duplicate the private hospitals already built. The province of Ontario built a publicly owned electric generating system, costing \$150,000,000, but finds since that it can buy current from neighboring privately owned plants much cheaper.

Black² of Oakland has given most ample reasons against this change. I cannot easily quote from his paper, read to this organization last year, for it is so good I would need to quote his article verbatim; but I can advise you, if it is hazy in your mind now after a year's rush of other things, to get a copy and read it again. It tells the whole story most clearly. Goodale,³ commending a financial plan to pay the doctor, and a hospitalization insurance plan such as mentioned above, says: "Under such an arrangement there is no necessity for trick medical service legislation, far-fetched, intricate administrative and control plans, and a legion of bureaucratic lay flunkies."

CALIFORNIA SUPREME COURT DECISION

The decision of California's highest court makes a very liberal interpretation of indigency, in relation to admission to the County Hospital. It admits all indigents and near indigents. It admits without cost all those of such limited means that a hospital bill might wreck them financially, where they get not only their hospital but their medical attention at no cost. Admission of the next higher bracket for limited pay would enable anyone who could succeed in persuading those in charge of admission that he was not well-to-do, to get, for limited pay, a service which the self-reliant had to pay for in full. That would develop a class skillful in establishing as a fact that they are very poor,

² Black, Benjamin W.: J. Am. Hosp. A., 10:38-40 (June), 1936.

³ Goodale, Walter S.: J. Am. Hosp. A., 36:779-783 (April), 1936.

¹ Richardson, D. L.: J. Am. Hosp. A., 10:36-38 (Nov.), 1936.

whether true or not, and the ever increasing number of those of elastic conscience would succeed in getting a limited-means rating, and hospitalization for limited pay, or, as Black² has shown, usually for little or no pay. They would resort to political wire-pulling, if need be.

What will happen if the State and its subdivisions widen the scope of admission and accept those of limited means for limited pay? The limits would not be narrow and take them away from the private and church hospitals, unsupported as they are by taxation. They could not compete, and would go down to financial destruction. Their destruction would confiscate the investment that has already been made. Surely, we have enough financial disaster now without setting up machinery to make more, and at a heavy increase of tax outlay. Under the sacred name of education, we stand for anything in taxation to increase the opportunities of our children. So to care for the sick and the needy we have always given freely to the tax gatherer. But there should be a line of demarcation between wise and unwise steps taken.

To be sure, all things are comparative, and there could be worse legislation than opening county hospitals to private patients of limited means, to be attended by their own private physician; that is, by having them attended by the State if that remained the limit. If the State wishes to be fatherly but still desires to use the best business methods, it should step in and take charge of the income of those it deems unfit to look out for themselves, to take enough out of each purse to buy a policy of hospital insurance, to insure their care in a place where it can be well done without cost to the State, without the possibility of politics interfering, in a private hospital. But State compulsion takes away liberty to a degree that no one wants. Let us hope that the patient of limited means will always be a private patient in both his hospital and medical care.

Medical attention is not the subject under discussion just now, but hospital and medical attention are much intertwined. Many of us believe that medical attention would soon be included if such change were made. Hired staffs would be next. Then the group to be pitied would not be the doctors, but the patients.

There is a much overworked statement extant that only the very poor and very wealthy can get hospital and medical attention. Let us inquire about that statement a little critically. While it is a fact that misfortune often overwhelms the provident through no fault of their own, the improvident do overflow the ranks of those of limited means. The provident make much more effort to accumulate, and are more careful not to dissipate what they do acquire. What they have they care for better than do the improvident, so they give their health better care, just as they take better care of their automobile, their growing crops, or anything else they possess. I think that fact greatly explains the statement made by the paid workers for the foundations in recent years, that those of limited means do not get as much hospital and medical attention as they should; but is that not just in keeping with improvidence in other matters? They simply do not take steps to get that service which is universally provided. You can put the water before the horse, but you cannot make him drink.

A story is told of a man extolling the virtues of modern methods of relief. In his enthusiasm he insisted that it was better than all previous plans; better than the plan of Jesus Christ. At that he was halted by someone who could not go all the way with him, but he maintained that Christ only said, "Come unto Me and I will give you bread," but popular plans now say, "Sit where you are and we will bring it to you." That is apt to exhaust the section of our population that has to carry it to them.

Everything has already been done but to take this hospital and medical care to the non-indigent; but there the line should be drawn. Let him make some move, insure himself, or otherwise provide his own hospitalization. Let the government take care of the indigent, and provide isolation hospitals for contagions, continue to be liberal as they now are with the tuberculous, insane, and chronic cases. Let those who are not indigent provide their own hospital care in private institutions already built. They will like it better, appreciate it more, and consider it a privilege—not just a right to be demanded.

In private hospitals some will occupy expensive rooms, some will take cheap ones—some of these from necessity,

others from thrift, though they can afford the expense of costlier rooms. The self-reliant often like to keep the reason for selecting a low-priced thing their own secret. Let us encourage more self-reliance, not less.

A recent trend is to create a federal fund, participation in which can be gotten by a state supinely passing a law of prescribed pattern. Then the separate states feel helpless, as their neighbors are helping themselves to the fund, and the only way to participate is to fall in line whether they like it or not. Our legislative workers have done well in combating evil legislation before legislative bodies—amazingly well. But let us not rest content with successes there. If so, soon the medical profession will be called big bullies in politics. People do not like big bullies. They band together and destroy them. But we have right on our side. Let us go to every grange, labor, or other meeting that will hear us, and show them wherein their interests lie. Sinister organizations have furnished nearly all the propaganda they have heard. They will listen to their doctors. We can win with the voter, but we must act and not let the misguided theorist do all the talking. These preach that tax-supported schools are a success and that state medicine would be a similar success. I presume they think we can take patients in big classes, not individually, for diagnosis and treatment, just like school classes. That would be so simple! Let us show the voter the fallacy of the theories of the propagandists, to whom they have been listening for a long time without enough interruption.

532 T. W. Patterson Building.

HELP FOR FIVE HUNDRED CRIPPLED CHILDREN IN CALIFORNIA

During a period of seven months, from September 1, 1936, to March 31, 1937, five hundred and two patients were examined in nine diagnostic clinics held in eight California counties under provisions of the Crippled Children's Program administered by the California State Department of Public Health. Counties in which the State Department of Public Health held diagnostic clinics for crippled children with certified orthopedic surgeons as clinicians during this period are Glenn, Yuba, Sutter, Butte, Sonoma, Solano, Contra Costa, and Colusa. Two clinics were held in one county—Butte.

Adequate records were made and kept of every child admitted to the clinic. These records consisted of identifying information, which enabled the physician to obtain some understanding of the family situation. Information regarding the past medical history and previous medical treatment was obtained. Clinical findings and recommendations for care were recorded. All records are on file at the office of the Crippled Children's Bureau. Two copies of records are kept at the office of the Crippled Children's Bureau. Copies are sent to the local public health nurse responsible for the care of the individual patient and the examining orthopedic surgeon. If hospitalization is recommended, such authorization is approved of by the Chairman of the Professional Advisory Committee and Director of the Department of Public Health and sent to the local public health nurse, the orthopedic surgeon, and the accountant for the Social Security Act.

As the program has developed, photographs of children have been included in the records. The department plans to have on file photographs of all physical defects found in children examined during these clinics. These will be supplemented by photographs taken following surgical treatment and illustrate corrections accomplished through orthopedic and plastic surgery. The use of motion pictures has been inaugurated during the last two clinics and is to be continued for all crippling defects that can be demonstrated through this medium.

With only one exception, a representative from the Bureau of Vocational Rehabilitation attended the diagnostic clinics. At each clinic he interviewed patients referred to him and gave consultations service for patients under sixteen years of age, the age at which this Bureau will accept patients for training. Not only was the clinical record of the patient available to him, but very often he discussed the patient's physical condition in terms of vocational adjustment with the orthopedic surgeon.

The source material for this discussion is based on information obtained from the patient's records. However,

statistical information regarding the diagnostic clinics is limited by the fact that it does not include all patients who sought the services provided. In the majority of the clinics held, a considerable number were not examined because conditions for which they requested care were outside the scope of the clinic. It was likewise not feasible, for the purpose of this discussion, to present a tabulation of diagnoses. Despite this limitation, the discussion does present an interesting summary of facts related to the Crippled Children's Program in California.

A compilation of statistical material shows that the largest number of patients attending a single clinic was in Sutter County, where eighty-one individuals were examined. The smallest number examined was in Yuba County, where thirty-three were examined. The average attendance during these diagnostic clinics was fifty-six.

Although the general population of the county is not strictly comparable with clinic attendance because of the factor of age in the general population, it is interesting to note that when such proportions are derived, the counties with the smaller population between ten thousand and fifteen thousand, that is, Glenn, Yuba, Sutter, and Colusa, had a larger percentage of their population at clinic. In this same manner, the larger counties had a smaller percentage at clinic. In the case of Contra Costa County this may be due to its proximity to San Francisco. The question of clinic organization and epidemiological factors in each individual county must be considered, but it is reasonable to presume that the need for clinic services provided was greater in the smaller rural counties.

Following the medical examination, the surgeon spent considerable time with the parents, or the patient if an adult, in explaining clinical findings and recommendations for care. Thus, not only were the services of orthopedic specialists made available to patients far removed from the larger urban centers, but their recommendations were interpreted and understood by the family before leaving the clinic.

A study of the 502 patients examined shows that they are almost evenly divided as to sex, 48 per cent being females and 52 per cent males.

Table 1 shows the number and per cent of the children examined in the eight counties, according to age groupings.

When these patients are classified by age groups as shown in Table 1, the largest single number of eighty-eight are found in the adolescent period of fourteen to fifteen years. This represents 17.5 per cent of the total number examined. The largest concentration of patients, nearly 71 per cent of the total number examined, was from eight to seventeen years. This might indicate that patients requiring care were more easily located when the patients were attending school or that the disease conditions occurred more frequently during these ages. Eleven and two-tenths per cent of the total patients were under six years of age, half of them being under four years of age. Almost as many, or 8.1 per cent, of the total patients were eighteen years or over. This might suggest that these disease conditions had existed over a period of years or that children who had previously been surgically treated were reporting back for further orthopedic supervision. The latter was true for children who have previously been cared for under the California Crippled Children's Act, which has been in operation since 1927.

TABLE 1.—Number and Per Cent of Patients Examined in Nine Diagnostic Clinics Held in Eight California Counties Classed by Age Groups

Age Groups	Number of Children	Per Cent
All ages	502	100.0
Under 2	9	1.8
2 to 3	19	3.8
4 to 5	28	5.6
6 to 7	50	9.9
8 to 9	67	13.3
10 to 11	59	11.8
12 to 13	77	15.4
14 to 15	88	17.5
16 to 17	64	12.6
18 to 19	29	5.8
20 and over	12	2.3

TABLE 2.—Number and Per Cent Distribution of Causative Factors Related to the Present Physical Condition of 502 Patients Examined in Nine Diagnostic Clinics

Causative Factors	Number of Causative Factors	Per Cent Distribution
Accident	103	18.4
Congenital	313	55.9
Disease	144	25.7
Total	560	100.0

General causative factors related to the present physical condition of the patient were recorded. A tabulation of these data is shown in Table 2.

While 502 patients were examined in diagnostic clinics, the total number of causative factors, as shown in Table 2, is 560. This is influenced by the fact that in the cases of fifty-eight patients there was more than one defect. Likewise, in some instances, the causative factors were so closely interrelated that it was necessary to record several causes.

Table 2 shows that 18.4 per cent of the causative factors involved were accidental, and 25.7 per cent disease. The largest number of disease conditions was due to poliomyelitis.

It is significant to note that over half of the causative factors recorded were due to congenital defects. This group includes not only orthopedic defects, but cases of ophthalmic, neurological, and orthodonture origin. The large proportion of congenital defects would suggest that they had existed over a considerable length of time and the family had been unable to provide necessary medical care. Provision for the correction of congenital defects, as well as other defects through the California Program for Crippled Children has been an effective means of ameliorating both physical and emotional disturbances. Experience has shown that the majority of children with physical defects continually combat an increasing sense of inadequacy, which reacts on not only the well-being of the individual, but also that of his family. The correction meets a vital need in the life and full development of the patient.

Table 3 shows the recommendations and per cent of recommendations made by orthopedic surgeons examining 502 patients during nine diagnostic clinics.

While 502 children were examined, no recommendations were made for 50 or nearly 10 per cent of the total children examined. This does not necessarily mean that no disease condition existed for this group, but that no further care was indicated at the time of the diagnostic clinic examination by the orthopedic surgeons. Five hundred and fifty-six recommendations were made for 452 patients. Thus, for many patients there was more than one recommendation for medical care.

When these recommendations are classified according to the type of medical care required, as shown in Table 3, it is found that 71.4 per cent of the total recommendations were for orthopedic care. It is interesting to note that although the clinical services provided were those of orthopedic surgeons, over one-fourth of the total recommendations or 28.6 per cent represented recommendations for non-orthopedic conditions. The largest number of these

TABLE 3.—Classification of Recommendations Made by Orthopedic Surgeons Examining 502 Patients by Number and Per Cent*

Orthopedic Surgeons' Recommendations	Number of Recommendations	Per Cent Distribution
Orthopedic	397	71.4
Oculist	70	12.6
Orthodontist	40	7.3
Other specialist	48	8.7
Institution	1	...
Total	556	100.0

* No recommendations were made in the cases of fifty children.

TABLE 4.—*Number and Per Cent of Orthopedic Recommendations Which Orthopedic Surgeons Made for 397 Patients*

Recommendations for Orthopedic Care	Number of Recommendations	Per Cent Distribution
Supervision	42	10.6
Surgery (orthopedic and plastic)	118	29.7
X-ray	29	7.3
Plaster cast	13	3.3
Appliance	74	18.6
Exercise	69	17.4
Referral to Clinic	20	5.1
Referral to Private Physician	26	6.5
Referral to Hospital	6	1.5
Total	397	100.0

recommendations or 12.6 per cent were for the services of an ophthalmologist. Almost as many received recommendations of an orthodontic nature as required the services of other specialists.

Table 4 shows the type of orthopedic recommendations which examining surgeons made for 397 children.

As shown in Table 4, almost one-third of the total orthopedic recommendations or 29.7 per cent was made for surgery which represents both orthopedic and plastic surgery. Ten per cent of the total recommendations was for continued orthopedic supervision. Almost as many recommendations were made for corrective exercises as for appliances. In the group for appliances are included corrective shoes.

Only 13.1 per cent of the total children for whom orthopedic recommendations were made was referred back to the clinic, private physician, or hospital previously attended. Almost as many had been under the care of a private physician as of a clinic. These figures might indicate either that the majority of the children examined were not under medical supervision or that the service required was that in a specialized field.

Although the services of the orthopedic surgeons are made available through the Crippled Children's Program, its method of reaching those requiring these services is in a large measure dependent upon the cooperation extended by local health, educational and social agencies, the schools, service clubs, private philanthropic societies, and other community and State organizations who assist in case finding service during the time the clinic is in progress, transportation of patients, lunches for patients, follow-up, and many other services which interested organizations are able to provide to the crippled patient in the local community.

The fact that recommendations were made for 90 per cent of the patients examined signifies not only the important contribution of the diagnostic clinic in meeting the needs of these patients in various California counties, but the necessity of following through the recommendations of the physician so that, in the end, medical care is not only conserved but made more truly effective.

In the final analysis, the end-results of provisions made available through the Crippled Children's Program will be directly related to the whole-hearted and enthusiastic cooperation of related agencies, organizations, and individuals. Their interest and service may assist the crippled patient to achieve the best possible physical, mental, and vocational adjustment.

CORONER SYSTEM: A PROPOSED MEDICAL EXAMINER SYSTEM FOR MICHIGAN

In 1877 Massachusetts abolished the office of coroner and replaced it with the office of medical examiner. The law authorized two full-time, salaried medical examiners for Suffolk County, in which Boston is situated, and in each of the other counties as many part-time examiners on a fee basis as the county commissioners might deem necessary. In such counties the number varies from one to eleven. The office is appointive, the term of service being seven years. Repeated reappointment of the medical examiners of Boston has resulted in a high type of medico-legal investigation not approached in any coroner jurisdiction. The success of the new system in Boston led to its

adoption in New York City in 1918 and in Essex County (Newark), New Jersey, in 1927. In each of these urban centers the superiority of the medical examiner system has been amply demonstrated.

In sparsely settled rural counties the problem of the antiquated coroner's office is more difficult to solve because of the relatively small amount of work to be done. In Massachusetts, outside of Suffolk County, the medical examiner system is an improvement over the coroner system, but still leaves much to be desired. With modern transportation facilities there is no necessity for from one to eleven medical examiners per county. In rural regions the consolidation of two or more adjoining counties into a medical examiner district under a single examiner might induce competent young physicians to enter the field of medico-legal pathology.

On March 29 a bill abolishing the coroner's office and setting up an examiner system was introduced into the legislature of Michigan. The essential features of the title of this bill are:

A bill relative to investigations in certain instances of the causes of death within this state due to violence, negligence or other act or omission of a criminal nature; to provide for the taking of statements from injured persons under certain circumstances; to abolish the office of coroner, and to transfer the powers and duties to a state medical examiner and to county medical examiners; to create the office of state medical examiner, and provide for county medical examiners and assistants, and to prescribe their powers and duties. . . .

The state medical examiner, who has no counterpart in the coroner system of any state, in addition to qualifications as to residence, profession and licensure, shall "possess special training in pathology and the investigation of violent deaths." He "is authorized to incur such . . . expenses and employ such assistants as shall be necessary in carrying out the provisions of this act." A reasonable appropriation for this provision would assure the organization and maintenance of a central medico-legal laboratory or institute, which would serve the entire state through the county medical examiners. This would be the most enlightened step in this field thus far taken in this country and would go far in the development of a system of scientific medico-legal investigation. It is further provided that the state medical examiner shall supervise the county examiners, shall consult and advise with them, and may perform the duties of any county examiner who may be negligent in the performance of his work.

For each county there is to be a county medical examiner appointed for a term of three years by the board of supervisors with the approval of the state medical examiner. The county examiner must be a resident of the county for which he is appointed, or of an adjoining county. The latter provision makes it possible for a single examiner to serve two adjoining counties. This is a step toward desirable functional consolidation. The board of supervisors may also appoint, with the approval of the state medical examiner, such deputy county medical examiners as may be necessary. This would insure the proper performance of the work of populous counties. The state medical examiner may recommend to the county board of supervisors the removal of any county examiner or deputy who may fail to perform his duties properly.

County medical examiners are authorized to make the necessary examinations of the bodies of such persons "as are supposed to have come to their death by violence; without medical attendance up to a time thirty-six hours prior to the hour of death; abortion, whether self-induced or otherwise; or in case any prisoner in any county or city jail shall die while so imprisoned." The county examiner is the sole judge of the necessity for postmortem examination in such cases. He may retain, for so long as may be necessary, such parts of the body as may be necessary for the detection of crime. On written order of the prosecuting attorney or attorney-general or on petition of six electors of the county, the county medical examiner may investigate the death of any person whose death is believed to have occurred in the county. No dead body may be cremated without the consent of the county medical examiner. The latter official is authorized to take the statement of "any person who has been injured by the criminal act, omission or negligence of another, and there is reason to believe that death is impending."

One of the worst features of the coroner system is the coroner's jury, as such juries are usually constituted. The Michigan act does not require a jury, but makes the calling of a jury optional with the county medical examiner. The latter may issue summons; failure of attendance is subject to penalty. If it appears that death was due to the unlawful act of another, the county medical examiner shall submit his conclusions and those of the jury, if one was called, to the prosecuting attorney. Any and all medical examiners may be required to testify in behalf of the state.

In a measure so enlightened as this, it is a matter of regret to note one seriously undesirable feature. The bill provides that the state medical examiner is to be appointed by the governor for a term of four years. This carries with it the potentiality of making the medical examiner system a part of a state political machine. The terms of governor and state medical examiner should not coincide. If appointment is made by the governor, the term of the state medical examiner should be seven years, as in Massachusetts. It is to be hoped that this feature will be amended and that the measure will become a law. To Michigan would then belong the credit of being the first state to devise a state-wide agency for the scientific investigation of deaths of which government must take official cognizance.—*Journal of the American Medical Association*.

RABIES: AN ALL-YEAR HAZARD*

"Dog days," according to a dictionary definition, is a term used to describe "the sultry, close part of summer when dogs are supposed to be specially liable to go mad." It will be news, therefore, to the average person that actually fewer animals go mad in summer than during any other season of the year. This conclusion is indisputable. It is based on reports of the prevalence of rabies in animals for six years, as supplied to the United States Public Health Service by approximately one-half of the states.

Spring, for which period the six-year daily average of cases of rabid animals was 12.2, is the season when the disease is most prevalent. There is very little difference, however, between the incidence of rabies in the spring and during the cold months of winter, when the daily average is 11.7. During the summer, which includes the "dog days," the average falls to 8.2. In other words, only two animals become rabid in summer to every three in the spring, and only seven during the hot summer months to every ten during the winter.

The chief lesson to be learned from these figures, however, is the necessity for systematic, 100 per cent muzzling of dogs at all seasons of the year. Many instances are on record of more or less determined opposition to the enforcement of dog-muzzling laws and ordinances during the cold months. Such resistance doubtless has its foundation in the impression that rabies is a warm-weather disease in both animals and human beings. The facts, as just stated, show beyond contradiction that this impression is a mistaken one, so far as the seasonal incidence of this dread disease in animals is concerned.

With respect to human rabies, the situation differs only slightly from that described for animals. While it is true that a few more human cases are reported for July and August than at other seasons, the margin of difference is slight. In fact, the Public Health Service records show that for every five cases of human rabies in both July and August there are four cases in January, May, and October. The slightly larger number of these "dog days" cases in human beings is probably due, in part, to the fact that the length of the incubation period in man, while variable, averages from six weeks to two months. It is thus to be expected that the heaviest incidence of animal rabies, which occurs in the spring, will be followed by the maximum prevalence of human rabies in the summer months. Another point to be reckoned with is that the late spring and summer are the periods of greatest out-of-doors exposure to dog bites. This applies especially to children, with whom incubation is usually of shorter duration than in adults, and who, accordingly, are more apt to develop rabies soon after being bitten.

Since rabies is an all-year-round disease, both as to source of infection from animals and occurrence in man, the importance of rigid enforcement of dog-muzzling laws

and of gathering in stray dogs at all seasons is apparent. When the disease is once established in a human being it is hopelessly incurable. No method of treatment has yet been discovered which, at that stage, is of the slightest avail. The only protection against rabies lies in its prevention by means of the Pasteur prophylactic treatment. This should be administered as soon as possible after a dog bite, whether the animal be merely suspected of being mad or is known to be so. Fortunately, the treatment gives a practically 100 per cent protection. Conclusive evidence of its efficacy is afforded by the fact that in 6,156 cases treated at the Pasteur Institute in Paris in the ten-year period 1924 to 1933 only a single death occurred.—*Statistical Bulletin, Metropolitan Life Insurance Company, May, 1937*.

THE PLAGUE SITUATION*

It is now just forty years since the present pandemic of plague began with the appearance of an epidemic in Hong Kong, and it is just thirty-four years since it reached California. Arriving in India from Hong Kong, it found favorable conditions and soon after 1900 the deaths reached a million per year. Even now, after nearly forty years of continuous activity, the deaths from plague in India are occurring at the rate of three to four thousand per week. Considered in the light of the known history of plague, there is nothing unusual in these facts, nor is there in the length of time it has been continuously present in California any ground for believing that it is dying out and will shortly disappear. It is characteristic of plague that its period is very slow, and the rise and fall of epidemics is measured in decades and centuries. Upon its appearance in a country it is sometimes years before its presence is manifested by any great mortality, and in the subsidence of a pandemic its final disappearance is interrupted by sporadic localized outbreaks. The long range periodicity of plague, as well as its persistence, is well shown in the history of plague in England, where it finally disappeared in 1680 after its almost continuous presence for 136 years. The Great Plague of London occurred in 1665 with about 70,000 deaths, but there had been, previous to that time and within the 136-year period, five epidemics of from 10,000 to 35,000 deaths at intervals of thirty, ten, twenty-two, eleven, and thirty years.

The following, quoted from Procopius of Caesarea in his History of the Persian Wars, describing the pandemic of the sixth century, which is the first authentic historical pandemic, is interesting in its parallelism with more modern appearances. "It arose in Egypt with the inhabitants of Pelusium, then dividing spread one way through Alexandria and the rest of Egypt, the other into Palestine which borders on Egypt, and then traveled over the world, always advancing with a progress marked by certain definite spaces of time. For it seemed to advance by a certain law and to demand a certain space of time in every country, discharging its venom against no one on the way casually, but spreading on this side and on that to the uttermost ends of the world as if it feared lest incautiously it should pass by any corner or recess upon earth. It spared neither island nor cave nor mountain top where man dwelt. If it passed over any place only slightly or mildly touching the inhabitants, it returned there afterward, leaving untouched the neighbors against whom it had spent its rage before, and it did not depart from there before it made up the full measure of the dead in proportion to the amount of destruction which it had brought on its neighbors. Always beginning at the sea coast, it spread into the interior. In the second year it reached Byzantium about the middle of the spring where, as it happened, I was staying."

The great epidemics of ancient times seem to have been of the bubonic form, although it must be remembered that historical accounts of plagues include all epidemic disease, typhus, smallpox, etc., as well as plague, and it is only the description of buboes by some of the writers that identify bubonic plague. Pneumonic plague might have occurred, but for authentic accounts of pneumonic plague epidemics we have only comparatively small outbreaks in recent years in Manchuria, in limited districts of India, and on a still smaller scale in California. There are, however, references seeming to indicate that pneumonic plague accompanied

* A rabies quarantine is now being enforced in the city of Los Angeles.

* By W. H. Kellogg, M. D., Chief, Division of Laboratories, California State Board of Health.

some of the bubonic outbreaks and, therefore, doubtless occurred alone.

Guy de Chauliac, in his description of the plague at Avignon, which was part of the second historical pandemic in the fourteenth century says: "The plague commenced with us in January; it continued seven months during which time it appeared in two forms. During the first two months it was accompanied with a continuous fever and with a coughing of blood. All who were attacked died in three days. During the other months the continuous fever was accompanied with tumors and boils, which appeared in the external parts of the body, chiefly in the arm pits and in the groin. Those who were thus attacked died in five days."

With illness of the individual, the prognosis is of great interest and importance to him. So also with the commonwealth, when plague is endemic a prognosis is of interest. Reviewing the past history of the disease, an attempt may be made to predict what the future has in store for California and for the rest of the nation. It soon develops, however, that about the only thing that is certain about plague is the uncertainty of its disappearance and that usually about a century is required for it to finally flicker out. This is the history of human epidemics. But how about the endemic foci, where plague lies dormant during the intervals between epidemic or pandemic spread? The natural reservoir of plague is in wild rodents of squirrel or ground-hog type, and the historical foci are districts in Arabia along the Red Sea, in Mesopotamia, in Thibet, in Yunnan in China, and in Uganda in Africa. More recently endemic foci have been established in Manchuria, from which point the pneumonic epidemics of 1910 and 1916 originated, and in California where the native rodent concerned is the ground squirrel, *Citellus beechii*. The rat, as a carrier of plague, seems to be subject to the rise and fall of epidemics the same as his human associate. When plague disappears from a human population, it leaves the rat population also, but the enzootic does not exactly coincide with the epidemic. It usually precedes it and is likely to linger longer. The source of human bubonic outbreaks is the rat, and the source of rat plague is, doubtless, contact with wild rodents in some endemic focus. The primary source of plague, therefore, is the wild native rodent and the distributor is the rat who travels in ships and visits all lands. The rat occasionally returns the infection to wild rodents in some new locality, thus establishing a new endemic focus. This happened in California shortly after the introduction of plague into San Francisco about 1900,* and presumably the point of contact was in the vicinity of the Port Costa warehouses. At any rate, squirrel plague was first found in that vicinity, and the enzootic soon reached large proportions.

The record of plague in California is briefly as follows: March, 1900. Bubonic plague appeared in San Francisco, principally in the Chinese colony, and a total of 121 cases, with 113 deaths, occurred over a period of four years.

May, 1907. Bubonic plague again appeared in San Francisco. The total number of cases in this outbreak over a period of six months was 160 and the deaths 78. This time not confined to Chinatown, but scattered over the whole city.

August, 1908. Plague proved to be present among the ground squirrels of Contra Costa County.

May, 1907, to December, 1918. Sporadic cases of human plague to the number of 11 with five deaths occurred in the counties of Alameda, Contra Costa, San Benito, Santa Clara, San Joaquin, and Stanislaus. Squirrel plague found to be present in the same counties as well as in Fresno, Monterey, San Luis Obispo, Santa Cruz, San Mateo, Merced, and San Francisco.

August, 1919. An outbreak of pneumonic plague in Oakland, which consisted of 13 cases with 12 deaths.

1919 to 1924, inclusive. Six sporadic cases with two deaths occurred in Alameda, Monterey, San Benito, and Santa Cruz counties.

October, 1924. An outbreak of pneumonic plague in Los Angeles, with 32 cases and 30 deaths.

November, 1924. Five cases of bubonic plague with three deaths in Los Angeles County.

1925 to 1933. Seven sporadic cases with five deaths in

the counties of Los Angeles, Santa Cruz, Monterey, and Santa Barbara.

1934.† One human case in Tulare County. Also a large epizootic among ground squirrels of Tulare and Kern counties, over two hundred positive specimens being found among those sent to the laboratory. Furthermore, an epizootic was discovered among the ground squirrels of Modoc County in the northeastern corner of the State on the eastern side of the Sierra.

This chronology of plague in California shows that we have had two bubonic epidemics, the first in San Francisco from 1900 to 1904, and the second in San Francisco and Oakland in 1907 and 1908. We have had two pneumonic epidemics, the first in Oakland in 1919, and the second in Los Angeles in 1924. We have had in all thirty-five sporadic cases with nineteen deaths, mostly in rural districts and of squirrel origin, nine counties being represented. Squirrel plague has been found in seventeen counties.

The plague situation on the west coast is of interest to health authorities throughout the country, as will be appreciated by a consideration of what the possible answer is to certain questions which immediately present themselves. These questions are: First, what is the probability of plague dying out before long? Second, what is the significance of ground-squirrel infection? Third, is plague in California a menace to other states? The answer to the first question is written in the history of plague, and from the brief references to that history already quoted in this paper it may be suspected that the chapter is not finished and may not be for many years to come. This is made all the more certain when it is remembered that there is every reason for believing that the historical epidemics and endemics were rat-borne and in course of time they did come to an end, whereas plague has been kept alive continuously in particular habitats where the rodent concerned was not the rat but a wild native animal such as the marmot. In these localities plague has not, so far as any one knows, ever completely disappeared. Such a focus now exists in the California ground squirrel.

In the answer to the second question we find the most disquieting aspect of the whole problem. In rat plague, pneumonia is not a common finding. Guinea pigs inoculated from rats rarely show lung involvement. In squirrel plague, pneumonia is common. Guinea pigs inoculated from squirrels very frequently present a pneumonia. The Oakland outbreak of thirteen pneumonic cases, which group, by the way, included two nurses and two doctors, was started by contact with squirrels, the first man having been squirrel hunting just before his onset. His case was primarily bubonic (axillary) with pneumonia supervening. The Los Angeles epidemic is not so easily traced to squirrels although in the rodent survey following, both rats and squirrels were found infected. There would seem, therefore, to be some ground for the theory that pneumonic plague is the result of a development of a specific organ virulence on the part of the prevailing strain of *B. pestis* by passage through a particular species of rodent. In this connection, Dr. Wu Lien Teh says:* "The idea that the species of rodents involved in the epizootic might influence the character of subsequent epidemics is a very fascinating one. Especially it has to be considered if a close relation does exist between epizootics in certain wild rodents and human outbreaks of pneumonic plague. In fact, a world-wide study of the disease both in rodents and in man, as undertaken by our staff within recent years, has yielded many data supporting this view. On the other hand, in some countries where only ordinary rats are involved the incidence of lung pest is conspicuous also. But before reaching any final conclusions the following points should be considered: (1) Though ordinary rats are sometimes found to be the original source of pneumonic outbreaks, in many instances the local rodents were not involved, the disease having been imported from outside by human agency, namely, by travelers incubating the disease. (2) How long has the disease existed in the local rats? In some plague areas with rat epizootics, pneumonic plague was frequent soon after the introduction of infection, but became rarer afterward. One might consequently suggest that the longer

† Since this date, four cases of human plague have been discovered in California.

* Kellogg: Present Status of Plague, with Historical Review, *American Journal of Public Health*, November, 1920.

• Reports of North Manchurian Plague Prevention Service, 1927-1928.

the infection continues among ordinary rats the less chance there is for pneumonic plague to appear to man." Finally, the significance of ground-squirrel infection, leaving out of consideration any bearing it may have on the type of human plague, lies in the fact that a new endemic focus has been established and these endemic foci, constituted as they are by wild rodent infection, are so far as anyone knows at present permanent and everlasting.

The third query, "Is plague in California a menace to other states?" I would answer by saying "Yes" and for the following reasons: (a) Because of the possibility of direct extension of the disease in the wild rodent population across state lines. We have recently discovered plague among the ground squirrels of Modoc County, four hundred miles from the nearest previously known plague area and close to the State lines of both Oregon and Nevada. For all we know it has already crossed over into both states. (b) It may travel by transference to the rats in some border-line urban area, the rats traveling, as is their wont, in freight cars or ships to new and distant localities. (c) The last reason to be mentioned necessitates a return to the epidemiology of pneumonic plague. Teague and Barber,* as a result of their investigations in Manchuria, believe that the essential conditions for a rapid spread of pneumonic plague are a low temperature with considerable humidity, thus permitting droplets containing plague bacilli to remain suspended in the air a longer time and at the same time preserving them against the destructive influence of warmth and drying. They point out that the greatest pneumonic epidemic of modern times occurred in Manchuria in the winter of 1910-1911, when the temperature was many degrees below zero centigrade; also that in India only 2 to 5 per cent of the cases are pneumonic and no large pneumonic outbreaks have occurred there except one of 1,400 deaths in Kashmir at an elevation of about 5,000 feet and in very cold weather. If we accept the plausibility of Teague's and Barber's thesis, we must admit the possibility of some person during the incubation period of plague traveling East in the winter time. Should this traveler develop an axillary or cervical bubo with a secondary pneumonia, the stage will be set for a rapid man-to-man transfer of a form of the disease that has no rival in the rapidity of its spread and the certainty of a fatal outcome.

"GOVERNMENT WILL STEP IN IF CUSTOMERS ARE DUPED"

Drug Industry Must Govern Self as Buyer—Helpless to Judge Product

Government regulation of manufacturers to give the consumer a fair break is in the offing unless industry learns to govern itself, Graham A. Laing, Professor of Economics and Business Administration, California Institute of Technology, warned yesterday afternoon at the California Pharmaceutical Association convention at the Hotel Huntington.

Professor Laing touched upon the difficulty consumers in this complex age have in determining whether or not an article is adulterated, and cited the need for business to deal honestly with customers.

BUYER AT MERCY

"In the long run," said Professor Laing, "the modern consumer must rely upon the business conscience of the producer or—and this is of great importance—upon the organized government to see that the ignorance and helplessness of the consumer is not unduly preyed upon by unscrupulous manufacturers.

"In the Middle Ages the consumer was expected to be as familiar with the product and the materials of which an article was composed as the maker. This is no longer possible. Then adulteration methods were crude and comparatively easily detected. Hence the buyer was expected to be on his guard.

"At the present time even experience is of little help. The constant changes in materials, methods, and processes is so great that one can seldom rely upon continuity of quality. The result is that the consumer nowadays can no

longer depend upon his own examination, experience, and judgment. And, consequently, even the law has begun to catch up with the changed situation. The courts now consider such matters as implied warranties, and so give a certain protection to the innocent and ignorant consumer."

LEGISLATURE CRITICIZED

The so-called "horse and buggy" system under which the State Legislature functions was hit by Assemblyman James J. Boyle of Los Angeles, who criticized the election of attorneys to legislatures, expressing the opinion they tend to represent clients instead of the State.

The speaker scored the number of lobbyists and pressure groups, decrying the fact that 250 lobbyists can pull an assembly of eighty persons apart.

PRICE WAR WARNING

Charles Luckman of Chicago declared fair trade acts would not be needed if manufacturers want to cooperate with retailers in standard minimum prices. He urged delegates to cooperate with manufacturers that attempt to stabilize commodity prices, and asserted that if another price war is allowed to arise it will be more vicious than ever before witnessed.—*Pasadena Post*, June 23, 1937.

Diets of Industrial Families in North Atlantic Cities.—Economic pressure is one of the chief reasons for the small quantities of dairy products, vegetables, and fruits bought by the family of the average low-income city worker in the North Atlantic States, according to a study by the United States Bureau of Home Economics of food purchases and nutrition of 1,400 typical families in sixteen selected cities of New York State, Pennsylvania, Massachusetts, and New Hampshire. The study, based on family records kept during 1934-1936, gives information on the daily food choices and costs of these industrial families and compares their food habits with those of families spending comparable amounts for food in Southern and Pacific Coast cities.

North Atlantic families on the higher expenditure levels bought more foods rich in high-quality proteins, minerals, and vitamins, in proportion to their entire diet, than families spending comparatively little for food. Families averaging \$4 per capita a week bought five times as much citrus fruit, three times as much of other fruits and leafy, green and yellow vegetables, and between two and three times as much butter, eggs, meat, poultry, and fish as families averaging \$1.60 per capita a week. They bought only slightly more bread, flour, cereals, and fats other than butter.

High-grade diets, assuring good nutrition, were obtained by about 30 per cent of all the North Atlantic families. About one-half were on fair diets, and somewhat less than one-fifth on definitely poor diets. The food of three out of ten families spending less than \$2.50 per capita a week failed to meet minimum requirements for good nutrition in one or more respects, shortages of calcium and vitamins A and B being most frequently found. Less than 10 per cent of the families spending more than \$2.50 per capita a week were on definitely poor diets.

Each person in families spending about \$1.60 per capita per week got: 4 pints of fresh milk, about one-third of a pound of butter, 3 eggs, 1.5 pounds of meat, poultry or fish; less than one pound of sugar, 2.5 pounds of ready-baked bread, rolls, or other baked goods; .5 pound of cereal, one-half pound of flour and meal, 2.3 pounds of potatoes, one-fourth of a pound of dried legumes, 1.5 pounds of other vegetables, two-thirds of a pound of citrus fruit and tomatoes, and one pound of other fruits.

But in families spending \$4 per capita weekly each person got approximately 7 pints of fresh milk, three-fifths of a pound of butter, 8 eggs, 4 pounds of meat, poultry or fish, 1½ pounds of sugar, 3.5 pounds of bread, rolls and other baked goods, two-thirds of a pound of cereal, two-thirds of a pound of flour and meal, 3.5 pounds of potatoes, one-fourth of a pound of dried legumes, 4 pounds of other vegetables, 2.5 pounds of citrus fruits and tomatoes, and 3 pounds of other fruits.

Sixty per cent of the families in the first group, and only 4 per cent of those in the second, were on low-grade diets, probably inadequate to maintain average good health in the average person.

* *Philippine Journal of Science*, page 157, 1912.

TWENTY-FIVE YEARS AGO†

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. X, No. 7, July, 1912

From Some Editorial Notes:

Suggestions to Authors.—A pamphlet with this title is issued by the American Medical Association and will be sent to anyone for the small sum of twenty-five cents. Every going-to-be author should provide himself with this pamphlet and read it carefully before writing his article. Many authors seem to resent the rejection of their manuscript when they really ought to apologize to the editor for sending him such slovenly or, possibly, illiterate work. If the following rules and suggestions were followed, fewer manuscripts would be rejected, a good article will be greatly increased in value, time will be saved, the editor will be able to keep his temper, and the compositor may be saved from a drunkard's grave:

Manuscripts must be typewritten to receive any consideration; they should be well spaced between the lines and with ample margins.

A carbon copy should not be submitted; the original is none too good, as a rule, and the carbon copy shows at once that another and better copy exists. If the author desires to keep a copy, he should keep the carbon copy.

Ingenuity is praiseworthy in almost anything except spelling. Dictionaries are cheap; the author should carefully correct his manuscript before sending it in. An aimless ingenuity in variegated spelling is calculated to drive nearly any "copy reader" crazy.

Exclusive publication is the rule of nearly every journal so far as known. To send the same article to two or more journals is cheating.

Do not write at all unless you have something to say and then say it as briefly as possible and stop.

Number the pages of your manuscript consecutively from first to last, and do not put slips of odd sizes in between sheets so that they can fall out, get misplaced, or in some other way give you a chance to kick at the printer for your own carelessness.

Case reports are, as a rule, maddening. They may possibly be intelligible to the author, but from the way he generally writes them up, even this is to be doubted. A case report should be as carefully written as any other portion of the article; and it should contain no unnecessary matter. Do not include negative findings; what is not stated to be abnormal is assumed to be normal.

Quotations are another source of anguish. A majority of authors will put quotation marks at the beginning of the quoted matter—and then carefully forget to put them at the end!

A "case" is a condition or instance of disease; a patient is a human being. One may operate upon a patient, but not upon a case; the patient dies or recovers; not the case.

Many illustrations are seldom necessary to elucidate the text of a properly written article. When they are necessary, they should be in the form of black and white drawings on a stiff paper, or clear, clean photographs on a glazed paper. Each should be numbered and have the name of the author on the back.

Never roll a manuscript; send it flat or folded.

Never roll or fold photographs; send them flat.

The Barany Symptom Complex.—Three years ago the name of Barany was known only to a few otologists, who were familiar with the work being done in the Politzer ear clinic. Today every neurologist and "internist" is making himself familiar with the work of this remarkable investigator. Starting with a study of the nystagmus produced by an irritation of the vestibular apparatus of the ear, brought about by the injection of cold water into the external canal, various functions of the cerebellum have been studied, until now more is known about the kinesthetic

(Continued in Front Advertising Section, Page 14)

†This column strives to mirror the work and aims of colleagues who bore the brunt of Association work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and new members.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF CALIFORNIA†

By CHARLES B. PINKHAM, M.D.
Secretary-Treasurer

News

"Action on the Attorney-General's petition for hearing on appeal from the recent Appellate Court decision, granting three members of the asserted Coast-wide illegal operations ring new trials, is expected from the State Supreme Court within a few days. James Beggs, Valentine St. John, and Jesse Ross, convicted in 1936 on counts of conspiracy and performing illegal operations, were given new trials when the Court held there was no corroborative evidence to sustain their conviction. Deputy Attorney-General Rhone also asked for an appeal on the dismissal of one count against William A. Byrne, former special agent for the State Board of Medical Examiners. His conviction on four other counts had been sustained by the Appellate Court." (Los Angeles Times, May 16, 1937.) (Previous entries, July, October, December, 1936.)

"A physician listed on the records of the Metropolitan Water District as Dr. Ralph Arthur Behrend, formerly of Manchester, Connecticut, was held in custody at the Riverside County Hospital today, after being arrested on the suspicion of theft of narcotics from the Parker Dam Emergency Field Hospital. The arrested man is not to be confused with Dr. R. Allen Behrendt of Los Angeles, who was formerly in charge of the Banning Field Hospital of the Water District, but who is now in private practice in Los Angeles, with offices at 2007 Wilshire Boulevard. First reports of the arrest recently identified the accused man as the Los Angeles physician, but this mistake was made because of the similarity in names and the further fact that the Los Angeles doctor had previously been in charge of the Banning Field Hospital, which the accused man was supervising at the time of his arrest. The Connecticut doctor had succeeded the Los Angeles doctor on the Banning Hospital job. The Parker Dam Field Hospital and the Banning Hospital are separate institutions, both operated by the Metropolitan Water District. . . . The arrested man . . . was graduated from Yale and is a native of Connecticut. . . . During the latter part of last week, according to authorities, the Connecticut doctor, allegedly suffering from the effects of narcotic addiction, went to the Parker Dam Hospital, obtained supplies of narcotics stored there and returned to Banning, where he was arrested. He was taken to the Riverside County Hospital, reportedly in a serious condition, while arraignment on the theft charge was held in abeyance. . . ." (Los Angeles Herald and Express, May 24, 1937.)

"Dr. Charles O. Long, Phoenix, Arizona, physician, today lost an appeal to the United States Circuit Court of Appeals on a conviction for violation of the Harrison Narcotics Act. Doctor Long was sentenced to eighteen months in a federal penitentiary for violation of the Act, which exacts a . . . sentence for sale of narcotics." (United Press dispatch, dated San Francisco, June 7, and printed in the Los Angeles Daily News, June 8, 1937.)

"Dr. Charles O. Long and his wife, Isabel, today pleaded 'not guilty' to murder charges in Superior Judge Frank T. Deasy's court. Trial was set for July 9. The couple were held responsible for the death of Mrs. Genevieve Arganbright, wife of Perry Arganbright of 4621 Lincoln Way, following an alleged illegal operation. The operation was reported performed in Doctor Long's flat at 1679 Haight Street, where Mrs. Arganbright's body was found May 19 by an undertaker's assistant. A coroner's inquest revealed death resulted from an illegal operation. Assistant Dis-

(Continued in Front Advertising Section, Page 17)

†The office addresses of the California State Board of Medical Examiners are printed in the roster on advertising page 6.